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SUB-GROUP ON RESEARCH NEEDS
SGRN 10-03
REVIEW OF NEEDS RELATED TO SURVEYS

4 - 8 OCTOBER 2010, BRUSSELS, BELGIUM

Edited by
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SCIENTIFIC, TECHNICAL AND ECONOMIC

COMMITTEE FOR FISHERIES (STECF)

STECF COMMENTS ON THE REPORT OF THE SGRN-10-03

SURVEYS REVIEW GROUP REPORT: REVIEW OF NEEDS RELATED TO SURVEYS

4 - 8 October 2010, Brussels, BELGIUM

STECF UNDERTOOK THE REVIEW DURING THE PLENARY MEETING

HELD IN BRUSSEL 8-12 NOVEMBER 2010

1. BACKGROUND

STECF is requested to review the report of the STECF-SGRN-10-03 Working Group of October 4 – 8, 2010 (Brussels) meeting, evaluate the findings and make any appropriate comments and recommendations.

2. TERMS OF REFERENCE

The terms of reference for the STECF-SGRN-10-03 Working Group are to be found in Annex I.

3. STECF OBSERVATIONS, COMMENTS AND CONCLUSIONS

STECF acknowledges the progress in survey evaluation procedures made by SGRN 10-03 (Brussels, 4-8 Oct 2010) and endorses their findings and recommendations for further improvement.

STECF notes that the down-weighting by the SGRN survey review of the evaluation criterion "ecosystem management needs" has created some debate on the limited scope of the DCF ecosystem indicators (Appendix XIII of COM Decision 2010/93/EU). These indicators were developed by three SGRN working groups in 2005-2007 within the frame of the Data Collection Regulation (DCR), which was operating at that time. The indicators were designed to make use of existing surveys and fisheries information. Consequently, the inclusion of further ecosystem aspects, such as the collection of data on environmental conditions and other ecosystem elements such as plankton and benthos, was not in the scope of STECF-SGRN 10-03 WG and has to be discussed in relation to the revision of the DCF.

STECF discussed the possibility of a cost-benefit analysis, contrasting survey costs with the (financial) value of the investigated resource. In the light of the multi-stock and multi-purpose use of survey data, however, the interpretation of such analysis might become very complex and potentially misleading. Moreover, the 'added value' of surveys, delivering information and sampling material for ecosystem studies and aspects of the Marine Strategy Framework Directive, cannot be estimated on any reliable basis at present.

STECF further discussed if a more regular review of surveys with regard to their use in stock assessment on a more analytical basis could be envisaged. This would allow for consideration of relatively short survey series that could fulfil the evaluation criteria sooner and would provide an objective basis for the importance of surveys with regard to informing the stock assessment process. STECF considers that this analytical approach could be conducted in a research study, rather than tasking a STECF working group with this issue.

4. ANNEX I – REPORT OF SGRN 10-03

SGRN-10-03 SURVEYS REVIEW GROUP REPORT: REVIEW OF NEEDS RELATED TO SURVEYS

4 - 8 October 2010, Brussels, Belgium

This report is the opinion of the Surveys Review Group (SGRN-10-03) and not of the Scientific, Technical and Economic Committee for Fisheries (STECF).

This report does not necessarily reflect the view of the European Commission and in no way anticipates the Commission's future policy in this area.

SGRN-10-03 SURVEYS REVIEW GROUP REPORT: REVIEW OF NEEDS RELATED TO SURVEYS

EXECUTIVE SUMMARY

The STECF Sub-Group on Research Needs (SGRN 10-03) met in Brussels during 4 – 8 October 2010 to review and evaluate over 100 research surveys that had been proposed by Member States for funding under the Data Collection Framework (DCF). The Review Group, consisting of 12 invited experts and a chair appointed by DG MARE, operated under terms of reference developed by SGRN 09-04 and approved by the STECF. The primary term of reference was to develop a prioritised list of surveys to be supported by the DCF according to six criteria developed by SGRN 09-04 and approved by the STECF. The six evaluation criteria were: (1) international coordination and harmonisation; (2) designed to inform management decisions, including the monitoring of ecosystem variables; (3) access to data by the scientific community; (4) survey coverage; (5) no duplication between surveys; and (6) history of the survey data. Secondary terms of reference were to (a) identify data gaps and research needs for the ecosystem approach to fisheries management and (b) provide feedback on the lessons learned during the survey review and suggest ways to improve future reviews.

Most of the meeting time was spent reviewing and evaluating the surveys. The reviews were conducted by three sub-groups, each with a regional focus and operating under the guidance of its own chair. The sub-groups worked independently but met daily in plenary to discuss and resolve difficulties and to work together on the two secondary terms of reference.

The primary materials for the review were a set of regional spreadsheet tables of proposed surveys that had been prepared by the DCF Regional Coordinating Meetings (RCMs). The Review Group agreed that each survey for each criterion would be assigned a score of 1, 2, or 3 to indicate the degree to which the survey met the criterion and that two of the evaluation criteria would be sub-divided. Thus criterion (1) was split into (1a) internationally coordinated and (1b) harmonised, and criterion (2) was split into (2a) fisheries management and (2b) ecosystem management needs, making a total of eight scores (1, 2 or 3) to be assigned to each proposed survey.

The terms of reference for the Surveys Review provided no guidance on how much weight to assign to each criterion when developing an overall priority score. After much discussion the Review Group agreed to calculate the priority score for a survey as the weighted average of the scores (1,2,3) assigned to the eight criteria for that survey using the following criteria weightings.

Criterion	Weight	Criterion	Weight
1a. Internationally coordinated	15%	3. Data access	5%
1b. Harmonised	15%	4. Survey coverage	10%
2a. Fisheries management	35%	5. No duplication	10%
2b. Ecosystem mgt needs	5%	6. History of use	5%

The Review Group evaluated information and produced scores for 92 different surveys: 52 from the Atlantic region; 11 from the Baltic Sea; 8 from the Black Sea and Mediterranean; and 21 from the North Sea and Eastern Arctic. Several additional surveys in the master spreadsheet tables from the RCMs were not evaluated because they appeared to be incorrectly specified as being eligible for funding under the DCF. About one third of the proposed surveys that the Review Group evaluated received high priority scores, in the range $1 \leq X < 1.1$ (34 surveys, 37%). About half the surveys received scores in the range $1 \leq X < 1.2$ (47 surveys, 51%). A relatively small number of surveys received low priority scores $2 \leq X$ (11 surveys, 12%).

With regard to data gaps and research needs, the Review Group agreed to revise the term of reference into two separate ideas: (a) data gaps in the existing suite of surveys with respect to providing stock assessment advice and (b) data provided by surveys that support the ecosystem approach to fisheries management. Although little progress was made during the meeting on these issues, some progress was made by correspondence. In particular, an example stocks-by-surveys matrix was prepared to illustrate stocks for which surveys do not currently provide supporting information and other stocks for which several surveys provide information. The stocks versus surveys matrix could be a useful tool in a strategic process for planning future surveys and other forms of fisheries research.

With regard to lessons learned during the meeting, the Review Group prepared a long list of observations and suggestions. Below are some of the key recommendations for the planning of future surveys reviews.

- Standard criteria, scoring rules, and criteria weightings for evaluating the surveys should be adopted and approved by the STECF before the surveys review meeting.
- The evaluation should include a criterion that measures data quality.
- The evaluation of ecosystem variables should include a criterion that measures a survey's potential to produce ecosystem data for fisheries management in addition to the data actually produced.
- The evaluation should include a criterion that measures the "importance" of the target stock(s) (e.g., "value" or overall size). Because this criterion has political, economic and social dimensions, and because surveys require significant expenditures of public funds, discussions regarding how to define and measure importance should involve fisheries management authorities and a broad range of users.
- The evaluation criteria, rules and weightings should be developed in full cooperation with the Member States.
- The responsible party for each proposed survey should prepare a brief proposal that (a) clearly states what information the survey is designed to supply and (b) responds to the specific criteria against which the surveys are to be evaluated. Proposals for new surveys should also explain what added contribution they would provide relative to existing surveys. These proposals should conform to a standard template approved by the STECF.

SGRN-10-03 SURVEYS REVIEW GROUP REPORT: REVIEW OF NEEDS RELATED TO SURVEYS

INTRODUCTION

Many Member States of the European Union (EU) regularly conduct research surveys of marine fish resources to provide fundamental data for assessing the condition of the exploited fish stocks and for monitoring general conditions of the marine ecosystem. Some of these surveys are partially supported by funds made available by means of the EU Data Collection Framework (DCF). During 4-8 October 2010, by invitation of the Scientific Technical and Economic Committee on Fisheries (STECF) in the form of a Sub-Group on Research Needs (SGRN 10-03), a group of experts met in Brussels to review the surveys that had been proposed for support by the DCF beginning in 2014. A similar review of surveys funded under the Data Collection Regulation (DCR), the predecessor of the DCF, was completed in 2007 by SGRN 07-01, which recommended that DCF-funded surveys be reviewed every three to five years (SGRN 07-01).

LIST OF PARTICIPANTS

The Review Group Chair in conjunction with the DG MARE focal-points developed the list of experts who were invited to participate in the SGRN 10-03 meeting.

Invited experts

Ricardo Alpoim (NAFO)
William Brodie (non-EU, Canada)
Georgi Daskalov (Black Sea)
Henrik Degel (ICES-SCICOM-SGESST)
Fabio Fiorentino (GFCM-SCSA)
Knut Korsbrekke (non-EU, Norway)
Maria Cristina Morgado (ICES-ACOM)
Carl O'Brien (ICES-ACOM)
David Reid (ICES-SCICOM-SGESST)
Stylianos Somarakis (STECF)
Christoph Stransky (STECF)
Andres Uriarte (ICES-SCICOM-SGESST)

Contact information for the invited experts is provided in Appendix 1.

European Commission participants

Antonio Cervantes (DG MARE focal-point)
Herwig Ranner (DG MARE focal-point)
David Sampson (Review Group Chair, JRC, non-EU, USA)

Review group composition

SGRN 09-04 recommended, and STECF agreed, that the Surveys Review Group should consist of twelve experts including the chair and should have the following composition.

- International neutral chair (non-EU, non-DCF related)
- STECF members (2 participants)
- Chairs of ACOM (of ICES) and SAC (of GFCM) (2 participants)
- Chair of the SGESST (of ICES) (1 participant)
- 2 members of SGESST (2 participants)
- Mediterranean & Black Sea: coordinator of the stock assessment (1 participant)
- NAFO scientific committee (1 participant)
- External participants (non-EU) with a background in surveys, planning, management, assessment, ecosystem indicators (2 participants)

Because some of the specific recommended participants were unavailable (e.g, the chairs of ICES-ACOM and GFCM-SAC), the actual composition of the Review Group differed slightly from what was recommended.

TERMS OF REFERENCE (TOR)

The Terms of Reference for the Surveys Review Group were developed by SGRN 09-04 and subsequently approved by the STECF. The specified Terms of Reference were as follows.

1. To set up a list of candidate surveys at sea to be supported by the Data Collection Framework (DCF) with their priorities, based on the list of criteria as proposed in report SGRN 09-04 (included below). Priorities can be 1 (good candidate), 2, 3 (no candidate). In case of priority 2, the review group might give options how the survey can be moved into priority 1.
2. To identify data gaps and research needs for the ecosystem approach to fisheries management based on the review of the DCF surveys. (See also SGRN 06-03 data gaps).
3. To provide feedback on the lessons learned during the survey review and ways to improve the selection system of surveys funded under the DCF.

Review criteria

The review criteria for evaluating the proposed surveys, as developed by SGRN 09-04 and subsequently approved by the STECF, were as follows.

1. Internationally coordinated and harmonised surveys.

   Internationally coordinated: The survey complies with an international coordination group. International is not in reference to the number of countries involved in the survey. *Harmonised survey*: The survey has as standardised survey protocol.

2. Surveys designed to inform management decisions.

   Management decisions: (a) fisheries management (stock assessment), (b) ecosystem management needs. Variables taken into account will at least be: number of species assessed, additional (ecosystem) information collected.

   Monitoring of ecosystem variables: A key question to be considered relates to "are only DCF ecosystem variables taken into account?"

3. Access of data by the scientific community.

   Under the DCF it is mandatory to make data available. It is, however, important to review if data are actually available. The INSPIRE directive might be incorporated.

4. Examine survey coverage in relation to area/season of the resource.

   Season, areas, number of ecosystems, number of species. Information contained in the National Programs.

5. Ensure there is no duplication between surveys.

   Duplication means overlap of area, target species, season, parameters collected by different surveys (e.g., the international IBTS is one survey).

6. Examine history of the survey data.

   Length of the survey, historic use of the survey in management decision. Temporal, spatial coverage in the time-series.

Revision to Term of Reference 2

The Review Group decided to modify its Term of Reference 2 because it seemed that literal adherence to the original text of the Term of Reference would not be productive and because the text seemed inconsistent with sections of the SGRN 09-04 report. The original text was broken into two parts: the first for data gaps in the existing suite of surveys with respect to providing stock assessment advice; the second for data provided by surveys that support the ecosystem approach to fisheries management. The first part follows directly from the sections called "Identification of data gaps and research needs" in the reports from SGRN 09-04 and SGRN 07-01.

Revised Term of Reference 2: To identify data gaps and research needs for providing fishery management advice based on the review of the DCF surveys. To identify how surveys can better inform the development of an ecosystem approach to fisheries management.

ToR 1: Surveys review and evaluations

Although SGRN 09-04 developed the terms of reference and review criteria for the surveys evaluation, many of the details for implementing the surveys review were not fully specified. The following section briefly describes the process that was adopted and used during the SGRN 10-03 meeting and follow-up discussions by correspondence.

The evaluation process

During spring and early summer 2010 the DG MARE focal-points, working with the DCF Regional Coordination Meetings (RCMs), developed lists and sets of key variables for all the surveys proposed for DCF funding as indicated in the DCF National Programs reports. Just prior to the Surveys Review meeting the Review Group Chair made available on the meeting web-page the various background documents that had been assembled and provided by DG MARE. Also, an operational plan for conducting the review was sent by email to the Review Group. On the first day of the meeting the proposed plan was discussed in plenary. Given the large number of surveys to be evaluated, it was agreed to split the Group into smaller sub-groups, each with a regional focus and each sub-group operating under the guidance of its own chair. During the week of activities the sub-groups worked independently but met daily in plenary to discuss and resolve difficulties and to work together on certain shared tasks.

Materials provided for the evaluation

A set of regional spreadsheet tables of proposed surveys, which had been prepared by the RCMs, was taken as the definitive master list of surveys that the Review Group should evaluate. Numerous other documents (see Table 1) that provided background information about the surveys were assembled and made available to the Review Group in electronic form.

Regional sub-groups

The Review Group had slightly more than 100 proposed surveys to review and evaluate. To make efficient use of time, this task was apportioned to three regional sub-groups. Although this structure made good use of the expertise and regional knowledge of the invited experts, the surveys were not evenly distributed amongst the three regional sub-groups. For example, the Atlantic region sub-group had about 55 proposed surveys to review and evaluate whereas the two other sub-groups each had only about 20 proposed surveys to review and evaluate.

Atlantic surveys:

Dave Reid (chair), Bill Brodie, Knut Korsbrekke and Cristina Morgado.

North Sea, eastern Arctic and NAFO:

Christoph Stransky (chair), Ricardo Alpoim, Carl O'Brien and Andrés Uriarte.

Baltic, Mediterranean, and Black Sea:

Fabio Fiorentino (chair), Georgi Daskalov, Henrik Degel and Stylianos Somarakis.

Scoring the individual criteria

The review criteria developed by SGRN 09-04 defined general dimensions on which the Review Group was to evaluate the proposed surveys, but the criteria did not specify how to assign scores. After considerable discussion during the opening plenary it was agreed that each survey for each criterion would be assigned a score of 1, 2, or 3 to indicate the degree to which the survey met the criterion, with 1 indicating that the criterion was met fully and 3 indicating that the criterion was not met at all. Further it was agreed that sub-

dividing some of the criteria would make the evaluation process easier. Thus criterion (1) was split into (1a) internationally coordinated and (1b) harmonised, and criterion (2) was split into (2a) fisheries management and (2b) ecosystem management needs, making a total of eight scores (1, 2 or 3) to be assigned to each proposed survey.

During the opening plenary there was discussion and considerable speculation about what would distinguish a score of 1 from a score of 2, and a score of 2 from a score of 3. It was agreed that the sub-groups would try working with the available data to learn first-hand about how to conduct the scoring. The sub-groups would meet in plenary to discuss lessons learned and how best to proceed.

Because the three sub-groups worked independently, there was concern that the application of the evaluation criteria by one sub-group would not be the same as the application of the evaluation criteria by the other sub-groups. Given the large number of proposed surveys, it was infeasible for the Review Group to evaluate all the surveys in plenary. As a practical compromise, the Review Group met in plenary on a daily basis and the sub-group chairs described their sub-group's interpretations and applications of the evaluation criteria, and the Review Group jointly discussed difficulties that had been encountered. Also, on the last day of the meeting the Review Group met in plenary to review some of the surveys that had been assigned low scores to try and confirm that the score assignments had been done fairly and uniformly. Additionally, after the meeting concluded the Review Group, acting by correspondence, made some slight changes to the scoring rules for the evaluation criteria and correspondingly revised a few of the survey scores.

Descriptions of the rules governing the assignment of scores to the eight criteria are given in Table 2.

Assigning the overall scores

SGRN 09-04 specified six criteria that the Review Group should use for developing a priority (1, 2, or 3) for each proposed survey, but SGRN 09-04 provided no guidance on how much weight to assign to each criterion when developing an overall priority score. During each of the early plenary sessions there were discussions of this problem but no apparent consensus on how to resolve it. Eventually it was agreed that the individual sub-groups would independently develop weightings to assign to the eight criteria (1b, 1b, 2a, 2b, and 3 to 6). These sub-group weightings, which were reviewed in plenary, were reasonably similar among the sub-groups and the full Review Group agreed to use the set of weights below to calculate the priority score for a survey as the weighted average of the scores (1,2,3) assigned to the eight criteria for that survey.

Criteria weightings:

Criterion	Weight	Criterion	Weight
1a. Internationally coordinated	15%	3. Data access	5%
1b. Harmonised	15%	4. Survey coverage	10%
2a. Fisheries management	35%	5. No duplication	10%
2b. Ecosystem mgt needs	5%	6. History of use	5%

The Review Group down-weighted criterion (2b), ecosystem management needs, because the agreed scoring system gave unfair advantage to bottom trawl and beam trawl surveys, which are the only types of surveys required under the current DCF to produce ecosystem indicators 1-4. The review group could not evaluate other possible ecosystem variables because the background information did not provide the required information. Also, as yet there are no clear uses being made of the DCF ecosystem indicators nor are there accepted objectives for ecosystem based fisheries management. In contrast, criterion (2a), fisheries management, was up-weighted because stock assessments and the process of providing fisheries management advice make regular and direct use of survey indices and data. Criteria (3), data access, and (6), history of use, were down-weighted because these criteria are already measured by criterion (2a), fisheries management. A survey that did not have accessible data and did not have a history of use would score poorly with respect to fisheries management. Also, data access is already a requirement under the DCF. Criteria (4), survey coverage, and (5), no duplication, were slightly down-weighted because these criteria were difficult to fairly evaluate from the available information.

Results of the evaluation

The Review Group evaluated information and produced scores for 92 different surveys: 52 from the Atlantic region; 11 from the Baltic Sea; 8 from the Black Sea and Mediterranean; and 21 from the North Sea and Eastern Arctic. A summary of the results from the evaluation process are presented in Table 3 and auxiliary information about the surveys is given in Table 4. Detailed comments regarding the scores assigned to some criteria for individual surveys are presented in a set of tables in Appendix 2.

In the master spreadsheet tables from the RCMs the Review Group found several surveys that appeared to be incorrectly specified as being eligible for funding under the DCF. For example, there were surveys of salmon smolts in rivers in the Baltic and Northeast Atlantic regions. The Review Group did not attempt to evaluate these surveys. For most of them there was insufficient information available to conduct an evaluation. Furthermore, the Review Group did not have appropriate expertise.

The priority scores were distributed as indicated in the table below. About one third of the proposed surveys that the Review Group evaluated received high priority scores, in the range $1 \leq X < 1.1$ (34 surveys, 37%). About half the surveys received scores in the range $1 \leq X < 1.2$ (47 surveys, 51%). A relatively small number of surveys received low priority scores $2 \leq X$ (11 surveys, 12%).

$1 \leq X < 1.1$	$1.1 \leq X < 1.2$	$1.2 \leq X < 1.3$	$1.3 \leq X < 1.4$	$1.4 \leq X < 1.5$	$1.5 \leq X < 1.6$
34	13	9	7	8	3
$1.6 \leq X < 1.7$	$1.7 \leq X < 1.8$	$1.8 \leq X < 1.9$	$1.9 \leq X < 2.0$	$2.0 \leq X < 2.1$	$2.1 \leq X$
2	3	2	0	2	9

With regard to the number of proposed surveys, it is largely a matter of opinion and personal preference whether to count a coordinated survey as a single survey or instead to count individually all the constituent parts. Table 3 has examples of both phenomena.

ToR 2: Data gaps and research needs

The highest priority task of the SGRN 10-03 meeting was to review and evaluate the surveys proposed for DCF funding (ToR 1). Accomplishing this task consumed most of the Review Group's time and resources. Although time was allotted to work on ToR 2 and 3 during each daily plenary session, much of this time was spent in discussions that tried to make sense of the original ToR 2, which mixed the ideas of data gaps and the ecosystem approach to fishery management. The Review Group was able to make some progress when it was agreed to revise ToR 2 and separate the two ideas, but this did not occur until more than half-way through the meeting. Some additional discussions occurred by correspondence.

a. Data gaps and research needs for fishery management

During the meeting the sub-groups concentrated on evaluating the surveys against the scoring criteria. They focused on understanding what information the surveys provided, which is a very different task than finding out what information the surveys failed to provide. The evaluation process was not well suited to identifying data gaps. However, one point uncovered during the evaluation process was that some current trawl surveys do not collect and read otoliths from the target fish species. This data gap decreases the value of the survey data for stock assessments and prevents the calculation of DCF ecosystem indicator 4 (size at maturation of exploited fish species).

To advance an idea discussed briefly during a plenary session, C. Morgado, at the Chair's request, after the close of the SGRN 10-3 meeting prepared a matrix for the North Sea of stocks versus surveys. The idea follows the suggestion by SGRN 07-01 to take "a more proactive approach in defining research needs rather than only evaluating what is available, or what is proposed for DCR funding". The example matrix, in Table 3, clearly illustrates stocks for which surveys do not currently provide supporting information (e.g., Nephrops in Division IVa, sandeel in Subarea IV) and other stocks for which several surveys provide information (e.g., cod in Division IIIa East [Kattegat], Norway pout in Subareas IV and Div. IIIa). The matrix was sent by email to the Review Group but there was no opportunity for the group to discuss in

plenary the potential utility of the information or approach. If such a matrix were to be coupled with additional similar matrices showing the availability of other types of information (e.g., age composition data or commercial CPUE indices), the stocks versus surveys matrix could provide a useful tool in a strategic process for planning future surveys and other forms of fisheries research.

b. Informing an ecosystem approach to fisheries management

Although most research surveys probably originated with the primary goal of providing abundance or biomass indices to support stock assessments and the provision of fishery management advice, most surveys collect (or could collect) more general forms of data that measure a wide variety of variables such as sea surface temperature, bottom substrate, habitat features, presence/absence of marine mammals. Also, research surveys provide basic information on spatial relationships (species distributions, community structure) and where things are located. Such forms of detailed spatial information are generally difficult or impossible to extract from the data that are obtained from commercial or recreational fisheries. Understanding the spatial aspects of stocks and fishing fleets is crucial to an ecosystem approach to fishery management (EAFM). Understanding dynamic spatial relationships cannot be reduced to a small number of simple ecosystem indicators, such as the set of four indicators that the current DCF requires of beam trawl and bottom trawl surveys. However, evaluating the quality and importance of a survey's contribution to EAFM is a complex task, made all the more difficult because the fisheries management and science communities do not yet have a clear and shared vision of what constitutes EAFM.

Although the Review Group did not have a focused and conclusive discussion of how surveys could contribute to an ecosystem approach to fisheries management, the following points were made.

- Surveys can provide data for understanding the trophodynamics of ecosystems at the eco-region level.
- Surveys can provide data for characterising spawning habitats or other essential habitats, especially for poorly studied species.
- Surveys can provide data for measuring changes in the communities of benthic organisms that may be influenced by trawling.
- Surveys can provide ground-truth data for constructing and validating dynamic hydrodynamic models.
- Surveys can provide data that help us understand fish recruitment processes.
- The task of exploring how to integrate surveys into EAFM has been specifically targeted by the ICES working group WGISUR. The work of this group will be done through a series of workshops, the first of which is WKCATDAT (Cataloguing data needs for the EAFM).

ToR 3: Lessons learned during the surveys review

During the Surveys Review meeting there were many formal and informal discussions on how to improve future reviews of surveys proposed for DCF funding. The Review Group offers the following observations.

- Given that the background information for the surveys was sometimes poor or missing, the evaluation exercise relied on having experts in the Review Group who were familiar with the details of the surveys. This reliance on expert knowledge, plus the lack of expert knowledge for all the surveys, probably meant that all the surveys did not receive equal treatment.
- Although international coordination and harmonisation were important evaluation criteria, the documentation available for many surveys did not clearly indicate how the surveys were coordinated and harmonised.
- Although use of surveys in stock assessment and fisheries management was deemed an important evaluation criterion, the documentation available for many surveys did not clearly indicate how the surveys were used in the assessment/management process. ICES assessments indicate the surveys that provide data, but there is no document for each survey that indicates which assessments use its data.
- A survey's contribution of ecosystem variables was difficult to evaluate. Information was consistently available only for the four ecosystem indicators required under the current DCF. Only the trawl and beam-trawl surveys were able to provide all four DCF ecosystem indicators. As a consequence other types of survey were at a disadvantage.

- The four DCF ecosystem indicators are based only on the "fish" community and exclude some important target species such as Nephrops and the early life stages (eggs and larvae) of all species.
- The evaluation scheme agreed to and used was inadequate for evaluating the criterion "ecosystem management needs". Many surveys provide data that broadly contribute to our understanding of ecosystems, but without ecosystem management objectives, it is impossible to decide if these data are useful or not.
- Many surveys sample non-target species that are not fully covered by the survey and that may not be used in an assessment. The background documentation did not clearly distinguish these "extra" species from the target species.
- The criterion "survey coverage" was difficult to evaluate. Surveys are often designed to survey particular management units for stocks that actually have a wider distribution.
- Survey coverage was often based on national waters, rather than on stock identity. Lack of harmonisation makes comparisons across management units difficult and creates problems for defining stock units (fish stock populations), particularly in determining which surveys provide indices for a stock unit.
- The background information for the surveys indicated the starting year of the surveys but not the number of years that the surveys' indices were used in assessments. Some surveys have gaps in their time-series that should be clearly indicated in the background documentation.
- Some of the evaluation criteria (e.g., fisheries management, history of use) are prejudicial to new surveys.
- The master list of surveys included some river surveys for salmon and eels which the Review Group could not evaluate because there was insufficient background information and because the Review Group did not have appropriate expertise.

RECOMMENDATIONS

The Review Group offers the following findings and corresponding recommendations.

- *Finding*: Currently there are numerous surveys that are referenced using more than one name and acronym.

  Recommendation: There should be a standard list of survey names and acronyms. Study groups and working groups who use and refer to survey data should be encouraged to only use the standard survey names and acronyms.

- *Finding*: The workshops being organised by the ICES working group WGISUR are directly relevant to improving DCF-funded surveys with respect to an ecosystem approach to fisheries management.

  Recommendation: The Commission should draft a letter to ICES officially indicating the Commission's interest in attending the WGISUR workshops and the potential for DCF funding to promote participation at the workshops.

- *Finding*: The Management Strategy Framework Directive (MSFD) describes several hundred ecosystem indicators but assigns no priorities to any individual indicators. There is a clear need in the future to identify a priority list of ecosystem indicator data from surveys that can be used for EAFM and for the MSFD. Ideally this should also describe how such data should be collected and how to assure their quality.

  Recommendation: As part of the above request regarding WGISUR and the workshop WKCATDAT the Commission should request that ICES provides advice on the prioritisation of potential ecosystem indicators that either are or could potentially be collected by fisheries resource surveys.

- *Finding*: The data from bottom- and beam-trawl surveys that are coordinated under ICES are stored in a standard format in the DATRAS database. This greatly facilitates access to and use of these data. However, the other surveys types (acoustic, underwater TV, and eggs/larvae) do not have a central database in ICES.

Recommendation: The Commission should (a) request the ICES Data Center to extend the current DATRAS database to include deepwater surveys and (b) request the development of databases to house data from acoustic, and egg surveys.

Future Surveys Reviews

Regarding how to conduct the next Surveys Review, the Review Group recommends usng a process similar to what was applied in the current review but with the following changes.

- Standard criteria, scoring rules, and criteria weightings for evaluating the surveys should be adopted and approved by the STECF before the surveys review meeting rather than abrogating this responsibility to the Review Group.
- Surveys should be evaluated on the completeness of the background information. They should be rejected for funding if the background information is seriously incomplete.
- The evaluation should include a criterion that measures data quality. At a minimum the background documentation should provide basic information on survey design (e.g., fixed versus random stations) and coverage (e.g., km^2 of survey area per station). Sampling errors of survey indices for key target species would be even more informative.
- The evaluation of ecosystem variables should include a criterion that measures a survey's potential to produce ecosystem data for fisheries management in addition to the data actually produced.
- The evaluation should include a criterion that measures the "importance" of the target stock(s) (e.g., "value" or overall size). Because this criterion has political, economic and social dimensions, and because surveys require significant expenditures of public funds, discussions regarding how to define and measure importance should involve fisheries management authorities and a broad range of users.
- Given that the Member States provide half the funding that supports these surveys, the evaluation criteria, rules and weightings should be developed in full cooperation with the Member States, including the directors of the national laboratories.
- Given that the surveys may provide information that is critically important to stock assessment working groups and advisory bodies, these entities should be informed of the review process and the rules governing its operation.
- To provide background documentation for the review the responsible party for each proposed survey should prepare a brief proposal that (a) clearly states what information each survey is designed to supply (data gap or data requirement by species) and (b) responds to the specific criteria against which the surveys are to be evaluated. Proposals for new surveys should also explain what added contribution they would provide relative to existing surveys. These proposals should conform to a standard template approved by the STECF.
- For any fully integrated survey the responsible survey working group (e.g., WGMEGS, IBTSWG) should be asked to prepare the master document describing the survey and its ability to address the evaluation criteria.
- Well in advance of the surveys review the evaluation criteria, rules and weightings should be advertised to the parties responsible for the surveys to allow them adequate time to prepare appropriate documentation.
- Prior to the review meeting the reviewers should be given a summary for each survey reporting the main information that will be used for the evaluation. (See recommendation above regarding a standard template with information for proposed surveys.)

REFERENCES

SGRN 06-03, Revision of the biological data requirements under the Data Collection Regulation.

SGRN 07-01, Review of list of surveys at sea (Appendix XIV of EU Commission Regulation N°1581/2004) with their priorities.

SGRN 09-04, Evaluation of revised national programs for 2010 under the Data Collection Framework and review of surveys.

ACRONYMS

ACOM	= Advisory Committee (ICES)
DATRAS	= DAtabase for TRAwl Surveys (ICES)
DCF	= Data Collection Framework of the European Commission
DCR	= Data Collection Framework of the European Commission
GFCM	= General Fisheries Commission for the Mediterranean
IBTS	= International Bottom Trawl Survey
ICES	= International Council for the Exploration of the Seas
NAFO	= Northwest Atlantic Fisheries Organization
RCM	= Regional Coordinating Meeting
SAC	= Scientific Advisory Committee (GFCM)
SCICOM	= Scientific Committee (ICES)
SCSA	= Sub-Committee on Stock Assessment (GFCM)
SGESST	= Steering Group on Ecosystem Survey Science and Technology (ICES)
SGRN	= Sub-Group on Research Needs (STECF)
STECF	= Scientific, Technical and Economics Committee for Fisheries
WG	= Working group

Table 1. Background materials provided for the surveys review and evaluation.

The following documents were made available to the Review Group on the SGRN 10-03 meeting web-page of the STECF web-site.

- Spreadsheet tables (master list) of surveys by region proposed for DCF funding, assembled by the RCMs.
- Tables III.G.1 and supporting text describing surveys proposed for DCF funding, from each Member State's National Program report.
- ICES 2007 Report on surveys in DATRAS.
- ICES 2007 Report on surveys in the DCR.
- SGRN 07-01 Report on the review of surveys.
- List of surveys funded under the 2008 DCF (Appendix IX, EC 2008 Data Collection Framework Regulation).
- ICES 2010 Survey compilation and errata.
- MEDIAS 2010 Mediterranean acoustic surveys report.
- MEDITS 2010 Mediterranean international bottom trawl survey.

In addition, the RCMs provided descriptions that addressed the specific review criteria for the following surveys.

- Baltic surveys.
- Memo on the North Sea sandeel survey.
- France and Spain bluefin tuna aerial survey.
- France Channel groundfish survey.
- France Bay of Biscay Nephrops (LANGOLF).
- France Bay of Biscay beam trawl (ORHAGO).
- Mediterranean and Black Sea surveys.
- Portugal acoustic & egg (SAR) and hake (PESCADA).
- Spain anchovy egg production (BOCADEVA).
- Spain Cadiz groundfish and nephrops.
- Spain pelagic acoustic survey (ECOCADIZ).
- Spain juvenile anchovy acoustic survey (JUVENA & PELACUS).
- UK Scotland North Sea sandeel survey.
- UK other surveys (deepwater and Rockall).

Table 2. Survey evaluation criteria and scoring rules.

Criterion		Score = 1	Score = 2	Score = 3
1a.	Internationally coordinated	Activities for this survey and related surveys are coordinated by a specific expert group associated with an international organisation such as ICES.	The survey has some international coordination (e.g., bilateral agreements); or, the survey details are available to expert groups but are not fully coordinated.	The survey is only national in scope and is not governed by any international group; or, the survey is not coordinated with other related surveys; or, insufficient information was provided for this evaluation.
1b.	Harmonised	There exists a survey manual or protocol, developed by an appropriate international working group; and, there is broad compliance with the agreed protocol.	A survey manual exists but there are non-compliance issues; or, harmonisation and the manual fail to agree on critical issues (e.g., acoustic target strength); or, harmonisation and a manual are in development but not in use (e.g., Nephrops television surveys).	There is no appreciable harmonisation with surveys of a similar kind.
2a.	Fisheries management	Survey indices are used to provide a basis for management advice, either as tuning fleets in the assessment(s) or in other ways such as providing biomass or recruitment trends, or identifying essential fish habitats.	Survey indices not actively used in assessment(s) or to provide advice, but their use is expected in the near future; or, indices are used in assessment(s) but provide very short or unproven time series.	No evidence of survey indices being used in assessment(s) or to provide advice.
2b.	Ecosystem management needs	The survey provides the DCF ecosystem indicators 1-4 and additional ecosystem-level data are available.	Improvements are needed to provide fully the four DCF ecosystem indicators; or, the survey is limited in scope (e.g., one target species, small geographic area).	The survey does not collect the four DCF ecosystem indicators and does not provide any substantial ecosystem-level data.

Table 2. Survey evaluation criteria and scoring rules (continued).

Criterion		Score = 1	Score = 2	Score = 3
3.	Data access	Data are freely available to working groups and other data users. For bottom and beam trawl surveys: data are available in an international database like DATRAS (ICES). For other survey types: data are available through integrated databases managed by individual institutes.	Data are available from Expert Group chairs but are not fully available in integrated databases. For bottom or beam trawls in the Atlantic or North Sea or Baltic Sea regions: data are not submitted to DATRAS.	No data are provided to any appropriate Working Group; or, no information was provided for this evaluation.
4.	Survey coverage	The survey completely covers one or more management units for one or more target species.	The survey does not completely cover any single management unit for any target species.	The survey does not completely cover any single management unit for any target species; and, it is not supplemented by other harmonised surveys that cover the rest of the distribution area.
5.	No duplication	The survey does not overlap with any other survey in space, season or survey type.	The survey has partial overlap with another survey in space, season or survey type.	Where a survey appears to have almost complete overlap in space, season or survey type with another survey.
6.	History of use	Survey indices or data have been used in advice for five or more years.	Survey indices or data have been used in advice for one to four years.	Survey indices or data have not been used in advice.

Table 3. List of surveys reviewed and evaluated by SGRN 10-03, Part A: evaluation scores and overall priority.

ID	Name of the survey	Acronym	Area	Period	Current DCF	Evaluation criteria								Priority score
						(1a)	(1b)	(2a)	(2b)	(3)	(4)	(5)	(6)	
Atlantic region														
1	Pelagic community acoustic surveys	SAHMAS (PELACUS, PELAGO, PELGAS)	IXa, VIIIa b c	Mar - Apr	Yes	1	2	1	1	1	1	1	1	1.15
2	Joint science/industry anglerfish survey	FSP	IV, VI	Apr	No	2	2	2	1	1	1	1	3	1.75
3	Spanish DEPM anchovy & sardine survey - spring - subarea VIII	BIOMAN	44ºN-48ºN; from 5ºW to the FRA coast	Spring (May)	Yes excl 3-day ext	1	1	1	2	1	1	1	1	1.05
4	DEPM anchovy - Gulf of Cadiz	BOCADEVA	IXa South (Algarve & Cadiz)	Jun - Jul	No	1	1	2	2	1	1	1	3	1.50
5	Iberian daily egg production (DEPM)	DEPM	(PRT and ESP coast - VIIIb c and IXa)	Jan (PRT) & Mar (ESP)	Yes	1	1	1	2	1	1	1	1	1.05
6	International blue whiting spawning stock survey	BWS	Vb, VI and VII	Mar - Apr	Yes	1	1	1	1	1	2	1	1	1.10
7	Spanish "pelagic community" acoustic survey - Gulf of Cadiz	ECOCÁDIZ	IXa South (Algarve & Cadiz)	Jun - Jul	No	1	2	1	1	1	3	1	3	1.45
8	UK (Northern Ireland) groundfish survey - March	NIGFS-WIBTS-Q1	VIIa (Irish Sea)	Mar	No (?)	1	1	1	1	2	1	1	1	1.05
9	Portuguese winter groundfish survey / Western IBTS 1th quarter	PGFS-WIBTS-Q1	Portuguese coast in Div. IXa	Feb - Mar	No	1	2	3	1	2	3	1	3	2.20
10	Scottish west coast groundfish survey - 1Q	ScoGFS-WIBTS-Q1	VI	Mar	Yes	1	1	1	1	1	1	1	1	1.00

Table 3. List of surveys, Part A: evaluation scores (continued).

ID	Name of the survey	Acronym	Area	Period	Current DCF	Evaluation criteria								Priority score
						(1a)	(1b)	(2a)	(2b)	(3)	(4)	(5)	(6)	
11	Cadiz groundfish survey - Spring	SPGFS-cspr-WIBTS-Q1	IXa South (Cadiz)	Mar	No	1	2	1	1	1	1	1	1	1.15
12	Scottish west coast groundfish survey - 3Q	WIBTS-Q3	VIb	Sep	No	1	1	1	1	1	1	1	1	1.00
13	UK (England) Western Groundfish Survey - 4Q	WIBTS-Q4	Celtic Sea & W of Scotland	Sep - Dec	No (?)	1	1	1	1	2	2	3	3	1.45
14	EVHOE Groundfish Survey	EVHOE-WIBTS-Q4	Bay of Biscay & Celtic sea	Oct - Nov	Yes	1	1	1	1	1	1	1	1	1.00
15	Irish groundfish survey	IGFS-WIBTS-Q4	VIa b c f g h i j k	Sep - Dec	Yes	1	1	1	1	1	1	1	1	1.00
16	UK (Northern Ireland) groundfish survey - October	NIGFS-WIBTS-Q4	VIIa (Irish Sea)	Oct	Yes (?)	1	1	1	1	2	1	1	1	1.05
17	Portuguese groundfish survey - October	PTGFS-WIBTS-Q4	IXa (Portuguese coast)	Oct	Yes	1	1	1	1	2	1	1	1	1.05
18	Scottish west coast groundfish survey - 4Q	ScoGFS-WIBTS-Q4	VI & VIIb	Autumn	Yes	1	1	1	1	1	1	1	1	1.00
19	Spanish groundfish survey - 4Q	SPGFS-WIBTS-Q4	VIIIc, IXa North	Sep - Oct	Yes	1	1	1	1	1	1	1	1	1.00
20	Cadiz groundfish survey - Autumn	SPGFS-caut-WIBTS-Q4	IXa South (Cadiz)	Nov	Yes	1	1	1	1	2	2	1	2	1.20
21	Spanish Porcupine groundfish survey	SPPGFS-WIBTS-Q4	VIIb c j k	Sep	Yes	1	1	1	1	1	1	1	1	1.00
22	UK (England and Wales) beam trawl survey - 3Q	ISBCBTS	VIIa (Irish Sea), VIIf g (Celtic Sea)	Sep	Yes	1	1	1	1	1	1	1	1	1.00
23	Beam trawl survey - Channel	UK (WCBTS-Q3)	VIIe f g h (Celtic Sea, W Channel, SW Ireland)	Oct	Yes	1	1	1	1	2	1	1	1	1.05

Table 3. List of surveys, Part A: evaluation scores (continued).

ID	Name of the survey	Acronym	Area	Period	Current DCF	Evaluation criteria								Priority score
						(1a)	(1b)	(2a)	(2b)	(3)	(4)	(5)	(6)	
24	Autumn surveys on juveniles	JUVENA	VIIIa b c d	Sep	No	1	1	1	1	1	1	1	2	1.05
25	Nephrops survey in bay of Biscay	LANGOLF	VIIIa b	2nd qtr	No	3	3	2	1	1	1	1	3	2.05
26	Mackerel and horse mackerel egg survey - western-southern spawning grounds	MEGS	VI, VII, VIII and Div. IXa	Jan - Jul	Yes	1	1	1	2	1	1	1	1	1.05
27	UK (Northern Ireland) Methot-Isaacs-Kidd survey	NIMIK	VIIa (Irish Sea)	Jun	No (?)	3	3	1	2	1	1	1	1	1.65
28	Sole in Divisions VIIIa,b (Bay of Biscay)	ORHAGO	VIIIa b	Nov	No	1	1	2	1	1	1	1	3	1.45
29	Portuguese acoustic survey - Autumn	SAR	Div.IXa (PRT coast & Gulf of Cadiz)	Oct - Nov	No	1	1	2	1	1	1	1	3	1.45
30	Acoustic Survey - Ireland	SPSHAS	VIIg,j, VIIaS	Oct	Yes	1	1	1	1	1	1	1	1	1.00
31	Malin Shelf (Constituent) Herring Acoustic Survey	SPSHAS	VIa, VIIb	Jan	Yes	1	1	2	1	1	1	1	3	1.45
32	Acoustic Survey - Scotland	SPSHAS	VIa	Jun - Jul	Yes	1	1	1	1	1	1	1	1	1.00
33	AC(VIIaN) acoustic survey	AC(VIIaN)	VIIaN (Irish Sea)	Sep	No (?)	3	3	1	1	3	1	1	1	1.70
34	DARD herring larva survey	NINEL	VIIaN (Irish Sea)	Nov	No (?)	1	1	3	2	1	1	1	3	1.85
35	Underwater TV survey	UWTV (FU 11-13)	FU13	Jun	Yes	1	2	1	3	1	1	1	1	1.25
36	Underwater TV survey	UWTV (FU 11-13)	FU12	Jun	Yes	1	2	1	3	1	1	1	1	1.25
37	Underwater TV survey	UWTV (FU 11-13)	FU11	Jun	Yes	1	2	1	3	1	1	1	3	1.35
38	Underwater TV survey	UWTV (FU 14)	FU14	Aug	No (?)	1	2	1	3	1	1	1	1	1.25
39	Underwater TV survey	UWTV (FU 15)	FU15 W Irish Sea	Aug	Yes	1	2	1	3	1	1	1	1	1.25

Table 3. List of surveys, Part A: evaluation scores (continued).

ID	Name of the survey	Acronym	Area	Period	Current DCF	Evaluation criteria								Priority score
						(1a)	(1b)	(2a)	(2b)	(3)	(4)	(5)	(6)	
40	Underwater TV survey	UWTV (FU 17)	FU17 Aran Grounds	Jun	Yes	1	2	1	3	1	1	1	1	1.25
41	Underwater TV survey	UWTV (FU 20-22)	FU20-22 Smalls	Jul	Yes	1	2	1	3	1	2	1	1	1.35
42	Portuguese crustacean surveys / Nephrops TV survey offshore Portugal	UWTV (FU 28-29)	IXa, FU28&29, SW and S coasts of PRT	May - Jun	Yes	1	2	1	1	1	1	1	1	1.15
43	UK Portuguese high headline trawl - 1Q	WCGFS	Celtic Sea & W of Scotland		No (?)	3	3	3	1	3	3	1	3	2.70
44	Azorean bottom longline survey - spring	ARQDACO(P)	Xa2	Qtr 2 - 3	No (?)	2	3	1	1	1	1	1	1	1.45
45	Irish deepwater trawl survey	IDS	Deepwater cont shelf, VI south & VII north	Sep - Dec	No	1	1	1	1	1	2	1	2	1.15
46	UK-Scotland West of Scotland Deepwater Survey	SDS		Sep	No (?)	1	1	1	1	1	2	1	2	1.15
47	UK (Northern Ireland) Nephrops trawl survey - Summer		FU 15, VIIa (Irish Sea W)	Aug	No (?)	3	3	1	1	2	1	3	1	1.85
48	UK (Northern Ireland) Nephrops trawl survey - Spring		FU 15, VIIa (Irish Sea W)	Apr	No (?)	3	3	3	1	2	1	3	1	2.55
49	International Redfish Trawl and Acoustic Survey (Biennial)	REDTAS	Va, XII, XIV; NAFO SA 1-3	Jun - Jul	Yes	1	1	1	1	2	1	1	1	1.05
50	Flemish Cap Groundfish Survey	FCGS	3M	Jul	Yes	1	1	1	1	2	1	1	1	1.05
51	Greenland Groundfish Survey	GGS	XIV, NAFO SA1	Oct - Nov	Yes	1	1	1	1	2	1	1	1	1.05
52	3LNO Groundfish survey	PLATUXA	3LNO	Qtrs 2 & 3	Yes	1	1	1	1	2	1	1	1	1.05

Table 3. List of surveys, Part A: evaluation scores (continued).

ID	Name of the survey	Acronym	Area	Period	Current DCF	Evaluation criteria								Priority score
						(1a)	(1b)	(2a)	(2b)	(3)	(4)	(5)	(6)	
Baltic Sea														
53	Baltic International Trawl Survey	BITS Q1, BITS Q4	IIIaS, IIIb c d	Qtrs 1 & 4	Yes	1	1	1	1	1	1	1	1	1.00
54	Gulf of Riga Acoustic Herring Survey	GRAHS	IIId	Qtr 3	Yes	1	1	1	1	1	1	1	1	1.00
55	Sprat Acoustic Survey	SPRAS (BASS)	IIId	May	Yes	1	1	1	1	1	1	1	1	1.00
56	Rügen Herring Larvae Survey	RHLS	IIId	Mar - Jun	Yes	1	1	1	2	1	1	1	1	1.05
57	Coastal fish gill net survey	GNS	Subdiv 28-32		No	3	1	3	2	2	2	1	1	2.20
58	Baltic International Acoustic Survey	BIAS	IIId, Div IIIa and Subdiv 22 - 24	Oct	Yes	1	1	1	1	1	1	1	1	1.00
59	Baltic International Acoustic Survey	BIAS	IIId, Subdiv 25 - 29 (minus Gulf of Riga) and 32	Oct	Yes	1	1	1	1	1	1	1	1	1.00
60	Baltic International Acoustic Survey	BIAS	IIId, Subdiv 22 - 32 (Baltic Sea)	Oct	Yes	1	1	1	1	1	1	1	1	1.00
61	Ichthyoplankton survey - Bornholm Basin		IIId	Apr, May, Aug	No	3	1	3	3	1	1	1	1	2.10
62	Ichthyoplankton survey - Arkona Basin		IIId	Apr, May, Aug	No	3	1	3	3	1	1	1	1	2.10
63	Ichthyoplankton survey - Gotland Deep		IIId	Apr, May, Aug	No	3	1	3	3	1	1	1	1	2.10

Table 3. List of surveys, Part A: evaluation scores (continued).

ID	Name of the survey	Acronym	Area	Period	Current DCF	Evaluation criteria								Priority score
						(1a)	(1b)	(2a)	(2b)	(3)	(4)	(5)	(6)	
Black Sea & Mediterannean														
64	Blue fin tuna aerial survey	BFTAS	GSA 5, 6, 7, 10, 11, 16, 18, 19	Summer (qtrs 2 & 3)	No	1	2	1	2	2	2	1	2	1.40
65	Pan-Mediterranean Acoustic Survey	MEDIAS	GSA 1, 6, 7, 9, 10, 15, 16, 17, 18, 20, 22	Spring-summer (qtrs 2-3)	Yes	1	1	1	1	1	2	1	1	1.10
66	Beam trawl survey - North Adriatic	ARTS	GSA 17	Winter (qtr 4)	No	1	1	1	1	1	1	1	2	1.05
67	Bottom trawl survey in Black Sea		GSA 29	Spring-autumn (qtrs 2,3,4)	Yes	1	1	1	1	1	2	1	1	1.10
68	Pelagic juvenile survey in Black Sea		GSA 29	Autumn (qtrs 3 & 4)	No	1	1	2	2	1	2	1	2	1.55
69	Pelagic trawl survey in Black Sea		GSA 29	Spring-autumn (qtrs 2,3,4)	Yes	1	1	1	2	1	2	1	2	1.20
70	International bottom trawl survey in the Mediterranean	MEDITS	GSA 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	Spring-summer (qtrs 2-3)	Yes	1	1	1	2	1	2	1	1	1.15
71	Trawl survey in the Mediterranean	TSMEDI	GSA 9, 10, 11, 15, 16, 17, 18, 19, 25	Autumn-winter (qtr 4)	No	1	1	1	2	1	2	1	1	1.15

Table 3. List of surveys, Part A: evaluation scores (continued).

ID	Name of the survey	Acronym	Area	Period	Current DCF	Evaluation criteria								Priority score
						(1a)	(1b)	(2a)	(2b)	(3)	(4)	(5)	(6)	
North Sea & Eastern Arctic														
72	International Bottom Trawl Survey Q1	IBTS Q1	IIIa, IV	1st qtr	Yes	1	1	1	1	1	1	1	1	1.00
73	International Bottom Trawl Survey Q3	IBTS Q3	IIIa, IV	3rd qtr	Yes	1	1	1	1	1	1	1	1	1.00
74	North Sea Beam Trawl Survey	BTS	IVb, IVc, VIId	3rd qtr	Yes	1	2	1	1	2	1	2	1	1.30
75	Demersal Young Fish Survey	DYFS	Coasts of NS	Qtrs 3 & 4	Yes	1	2	2	1	2	1	1	1	1.55
76	Sole Net Survey	SNS	IVb, IVc	Qtr 3	Yes	1	1	1	1	2	2	2	1	1.25
77	North Sea Sandeels Survey	NSSS	IVa, IVb	Qtr 4	Yes	2	1	1	2	2	1	1	1	1.25
78	North Sea Sandeels Survey	NSSS(Sco)	IVa	Qtr 4	No	2	1	2	2	2	1	1	2	1.65
79	International Ecosystem Survey in the Nordic Seas	ASH	IIa	May	Yes	1	1	1	1	2	1	1	1	1.05
80	Redfish Survey in the Norwegian Sea and adjacent waters	REDNOR	II	Aug - Sep	Yes	1	1	1	1	2	1	1	2	1.10
81	Mackerel Egg Survey (Triennial)	NSMEGS	IV	May - Jul	Yes	1	1	1	2	2	1	1	1	1.10
82	Herring Larvae Survey	IHLS	IV, VIId	1st and 3rd qtr	Yes	1	1	1	2	2	1	1	1	1.10
83	NS Herring Acoustic Survey	NSHAS	IIIa, IV, VIa	Jun, Jul	Yes	1	1	1	1	2	1	1	1	1.05

Table 3. List of surveys, Part A: evaluation scores (continued).

ID	Name of the survey	Acronym	Area	Period	Current DCF	Evaluation criteria								Priority score
						(1a)	(1b)	(2a)	(2b)	(3)	(4)	(5)	(6)	
84	Nephrops TVsurvey (FU 3&4)	NTV3&4	IIIa	Qtr 2 or 3	Yes	1	2	2	3	2	1	1	2	1.70
85	Nephrops TVsurvey (FU 6)	NTV6	IVb	Sep	Yes	1	2	1	3	2	1	1	1	1.30
86	Nephrops TVsurvey (FU 7)	NTV7	IVa	Qtr 2 or 3	Yes	1	2	1	3	2	1	1	1	1.30
87	Nephrops TVsurvey (FU 8)	NTV8	IVb	Qtr 2 or 3	Yes	1	2	1	3	2	1	1	1	1.30
88	Nephrops TVsurvey (FU 9)	NTV9	IVa	Qtr 2 or 3	Yes	1	2	1	3	2	1	1	1	1.30
89	Nephrops TV survey (FU 10)	NTV10	IVa	Qtr 2	No	2	2	2	3	2	2	1	3	2.00
90	Danish larval survey on sandeels	NSSLS	IV	Qtr 2	No	3	2	3	2	3	3	2	3	2.70
91	Cooperative Fishermen- DTU Aqua sole survey	SOLIIIA	IIIa	Nov	No	2	2	1	1	2	2	1	1	1.45
92	Spanish bottom trawl survey (slope of Svalbard)		IIb	Oct	No	3	3	3	2	2	2	2	3	2.70

Table 4. List of surveys reviewed and evaluated by SGRN 10-03, Part B: auxiliary information.

ID	Name of the survey	Acronym	Main target species	Countries [a]	Comments
Atlantic region					
1	Pelagic community acoustic surveys	SAHMAS (PELACUS, PELAGO, PELGAS)	Anchovy, sardine, horse mackerel	ESP, FRA, PRT	Three surveys are coordinated and have been broadly evaluated together.
2	Joint science/industry anglerfish survey	FSP	Anglerfish, megrim	GBR (Sco), IRL	Irish and Scottish surveys combined for evaluation.
3	Spanish DEPM anchovy & sardine survey - spring - subarea VIII	BIOMAN	Anchovy, sardine	ESP	
4	DEPM anchovy - Gulf of Cadiz	BOCADEVA	Anchovy	ESP	The number of hauls (25-30) seems too small, and takes too much time.
5	Iberian daily egg production (DEPM)	DEPM	Sardine	ESP, PRT	Stock is linked to a stock complex extending to North Africa, so stock coverage is an issue, but survey coverage is appropriate to management EUROPEAN part of the stock.
6	International blue whiting spawning stock survey	BWS	Blue whiting	FRO, NLD, NOR, RUS	
7	Spanish "pelagic community" acoustic survey - Gulf of Cadiz	ECOCÁDIZ	Anchovy	ESP	The survey combination (off shore and coastal) is still very exploratory and needs to be developed.
8	UK (Northern Ireland) groundfish survey - March	NIGFS-WIBTS-Q1	Cod, haddock, herring, plaice, whiting	GBR (N Ire)	Herring survey element is very confused. Is this the same survey or are they adding days to survey herring ONLY in the Celtic Sea. Seem to be fewer stations per day than other q4 west ibts surveys.
9	Portuguese winter groundfish survey/Western IBTS 1th quarter	PGFS-WIBTS-Q1	Hake	PRT	Survey gear of WIBTS MUST be harmonised to allow robust integration of indices, abundance maps, ecosystem indicators etc.
10	Scottish west coast groundfish survey - 1Q	ScoGFS-WIBTS-Q1	Anglerfish, cod, haddock, roundnose grenadier, spurdog, whiting	GBR (Sco)	Survey gear of WIBTS MUST be harmonised to allow robust integration of indices, abundance maps, ecosystem indicators etc.

[a] Country codes are shown at the bottom of Table 4.

Table 4. List of surveys, Part B: auxiliary information (continued).

ID	Name of the survey	Acronym	Main target species	Countries	Comments
11	Cadiz groundfish survey - Spring	SPGFS-cspr-WIBTS-Q1	Cephalopods, hake, nephrops (FU 30)	ESP	Should consider TV counting surveys. Should be evaluated as a Nephrops survey as it is unlikely to be useful or used for hake management.
12	Scottish west coast groundfish survey - 3Q	WIBTS-Q3	Haddock	GBR (Sco)	Could it provide a cod index as well?
13	UK (England) Western Groundfish Survey - 4Q	WIBTS-Q4	Demersal fish	GBR (Eng & Wales)	Survey gear of WIBTS MUST be harmonised to allow robust integration of indices, abundance maps, ecosystem indicators etc.
14	EVHOE Groundfish Survey	EVHOE-WIBTS-Q4	Anglerfish, cod, demersal elasmobranchs, gurnard, haddock, hake, herring, horse mackerel, lemon sole, megrim, nephrops, whiting	FRA	Survey gear of WIBTS MUST be harmonised to allow robust integration of indices, abundance maps, ecosystem indicators etc.
15	Irish groundfish survey	IGFS-WIBTS-Q4	Anglerfish, cod, demersal elasmobranchs, haddock, hake, herring, megrim, spurdog, whiting	IRL	Survey gear of WIBTS MUST be harmonised to allow robust integration of indices, abundance maps, ecosystem indicators etc.
16	UK (Northern Ireland) groundfish survey - October	NIGFS-WIBTS-Q4	Cod, haddock, herring, plaice, spurdog, whiting	GBR (N Ire)	Herring survey element is very confused. Is this the same survey or are they adding days to survey herring ONLY in the Celtic Sea. Seem to be fewer stations per day than other q4 western IBTS surveys.
17	Portuguese groundfish survey - October	PTGFS-WIBTS-Q4	Anglerfish, blue whiting, hake, horse mackerel, megrim, nephrops	PRT	Survey gear of WIBTS MUST be harmonised to allow robust integration of indices, abundance maps, ecosystem indicators etc.
18	Scottish west coast groundfish survey - 4Q	ScoGFS-WIBTS-Q4	Cod, demersal elasmobranchs, haddock, spurdog, whiting	GBR (Sco)	Inconistent duration of these surveys, is this combined with something else to cover elasmobranchs?
19	Spanish groundfish survey - 4Q	SPGFS-WIBTS-Q4	Anglerfish, blue whiting, demersal elasmobranchs, hake, horse mackerel, megrim	ESP	Survey gear of WIBTS MUST be harmonised to allow robust integration of indices, abundance maps, ecosystem indicators etc.

Table 4. List of surveys, Part B: auxiliary information (continued).

ID	Name of the survey	Acronym	Main target species	Countries	Comments
20	Cadiz groundfish survey - Autumn	SPGFS-caut-WIBTS-Q4	Hake	ESP	
21	Spanish Porcupine groundfish survey	SPPGFS-WIBTS-Q4	Anglerfish, blue ling, demersal elasmobranchs, greater forkbeard, hake, megrim, nephrops	ESP	
22	UK (England and Wales) beam trawl survey - 3Q	ISBCBTS	Cod, plaice, sole, whiting	GBR (Eng & Wales)	
23	Beam trawl survey - Channel	UK (WCBTS-Q3)	Demersal elasmobranchs, plaice, sole	GBR (Eng & Wales)	
24	Autumn surveys on juveniles	JUVENA	Anchovy	ESP	
25	Nephrops survey in bay of Biscay	LANGOLF	Nephrops	FRA	
26	Mackerel and horse mackerel egg survey - western-southern spawning grounds	MEGS	Horse mackerel, mackerel	ESP, PRT, IRL, GBR, NLD, DEU, NOR	MEGS (Feb - Jul) and TRIENAL surveys evaluated together.
27	UK (Northern Ireland) Methot-Isaacs-Kidd survey	NIMIK	Cod, haddock, whiting	GBR (N Ire)	
28	Sole in Divisions VIIIa,b (Bay of Biscay)	ORHAGO	Bay of Biscay sole	FRA	Only fishery independent survey for Bay of Biscay sole.
29	Portuguese acoustic survey - Autumn	SAR	Anchovy, sardine	PRT	
30	Acoustic Survey - Ireland	SPSHAS	Herring	IRL	
31	Malin Shelf (Constituent) Herring Acoustic Survey	SPSHAS	Herring	IRL	
32	Acoustic Survey - Scotland	SPSHAS	Herring	GBR (Sco)	
33	AC(VIIaN) acoustic survey	AC(VIIaN)	Herring	GBR (N Ire)	
34	DARD herring larva survey	NINEL	Herring	GBR (N Ire)	
35	Underwater TV survey	UWTV (FU 11-13)	Nephrops	GBR (Sco)	

Table 4. List of surveys, Part B: auxiliary information (continued).

ID	Name of the survey	Acronym	Main target species	Countries	Comments
36	Underwater TV survey	UWTV (FU 11-13)	Nephrops	GBR (Sco)	
37	Underwater TV survey	UWTV (FU 11-13)	Nephrops	GBR (Sco)	
38	Underwater TV survey	UWTV (FU 14)	Nephrops	GBR (N Ire)	
39	Underwater TV survey	UWTV (FU 15)	Nephrops	GBR (N Ire), IRL	
40	Underwater TV survey	UWTV (FU 17)	Nephrops	IRL	
41	Underwater TV survey	UWTV (FU 20-22)	Nephrops	IRL	
42	Portuguese crustacean surveys / Nephrops TV survey offshore Portugal	UWTV (FU 28-29)	Hake, megrim, nephrops	PRT	Only covers a small part of the stock area. Survey evaluated as TV only but includes bottom trawl.
43	UK Portuguese high headline trawl - 1Q	WCGFS	Demersal elasmobranchs	GBR (Eng & Wales)	Little information provided; different from western IBTS; does not seem to cover all the stocks areas in question; not on any web-sites.
44	Azorean bottom longline survey - spring	ARQDACO(P)	Demersal elasmobranchs, kitefin shark, red seabream	PRT	
45	Irish deepwater trawl survey	IDS	Blue ling, deepwater sharks, orange roughy	IRL	ICES should agree to incorporate deep water surveys in DATRAS
46	UK-Scotland West of Scotland Deepwater Survey	SDS	Deepwater sharks	GBR (Sco)	
47	UK (Northern Ireland) Nephrops trawl survey - Summer		Nephrops	GBR (N Ire)	
48	UK (Northern Ireland) Nephrops trawl survey - Spring		Nephrops	GBR (N Ire)	
49	International Redfish Trawl and Acoustic Survey (Biennial)	REDTAS	Deep-sea redfish	DEU, ISL, RUS, NOR	Delivers the only survey time series on pelagic deep-sea redfish in this area.
50	Flemish Cap Groundfish Survey	FCGS	Demersal species	ESP, PRT	Delivers the only survey time series on demersal fish in NAFO Div. 3M.

Table 4. List of surveys, Part B: auxiliary information (continued).

ID	Name of the survey	Acronym	Main target species	Countries	Comments
51	Greenland Groundfish Survey	GGS	Cod, redfish, other demersal species	DEU	Delivers the only survey time series on Greenland cod and several demersal fish species around East and West Greenland.
52	3LNO Groundfish survey	PLATUXA	Demersal species	ESP	Delivers the only survey time series on demersal fish in the deeper part of the Regulatory Area of NAFO Div. 3LNO and is complementary to Canadian survey.
Baltic Sea					Comments are in Appendix 2.
53	Baltic International Trawl Survey	BITS Q1, BITS Q4	Cod, other demersal species	SWE, LTU, LVA, RUS, POL, DEU, DNK, RUS	
54	Gulf of Riga Acoustic Herring Survey	GRAHS	Herring	LVA	
55	Sprat Acoustic Survey	SPRAS (BASS)	Sprat, herring	DEU, LTU, RUS	
56	Rügen Herring Larvae Survey	RHLS	Herring	DEU	
57	Coastal fish gill net survey	GNS	Cod, flounder, herring, pike, pikeperch, perch, whitefish, eel	EST	
58	Baltic International Acoustic Survey	BIAS	Herring (Western Baltic spring spawners)	SWE, FIN, EST, LTU, LVA, RUS, POL, DEU, DNK	
59	Baltic International Acoustic Survey	BIAS	Herring	SWE, FIN, EST, LTU, LVA, RUS, POL, DEU, DNK	
60	Baltic International Acoustic Survey	BIAS	Sprat	SWE, FIN, EST, LTU, LVA, RUS, POL, DEU, DNK	

Table 4. List of surveys, Part B: auxiliary information (continued).

ID	Name of the survey	Acronym	Main target species	Countries	Comments
61	Ichthyoplankton survey - Bornholm Basin		Cod	DEU, DNK, LVA	
62	Ichthyoplankton survey - Arkona Basin		Cod	DEU, DNK, LVA	
63	Ichthyoplankton survey - Gotland Deep		Cod	DEU, DNK, LVA	
Black Sea & Mediterannean					Comments are in Appendix 2.
64	Blue fin tuna aerial survey	BFTAS	Tuna, other large pelagic fish	ESP, FRA, ITA	
65	Pan-Mediterranean Acoustic Survey	MEDIAS	Anchovy, sardines	ESP, FRA, ITA, MLT, SVN, GRC, HRV, BGR, ROU intends to join later	
66	Beam trawl survey - North Adriatic	ARTS	Solea vulgaris GSA 17	ITA, SVN, HRV	
67	Bottom trawl survey in Black Sea		Psetta maxima in GSA 29	ROU, BGR	
68	Pelagic juvenile survey in Black Sea		Anchovy, horse mackerel	ROU, BGR	
69	Pelagic trawl survey in Black Sea		Sprat	ROU, BGR	
70	International bottom trawl survey in the Mediterranean	MEDITS	39 demersal species (list in Medits Handbook 2007)	ESP, FRA, ITA, MLT, SVN, GRC, CYP, HRV, MNE, ALB, MAR	

Table 4. List of surveys, Part B: auxiliary information (continued).

ID	Name of the survey	Acronym	Main target species	Countries	Comments
71	Trawl survey in the Mediterranean	TSMEDI	39 demersal species (list in Medits Handbook 2007), anchovy, sardine	ITA, SVN, MLT, CYP, HRV, MNE, ALB	
North Sea & Eastern Arctic					
72	International Bottom Trawl Survey Q1	IBTS Q1	Cod, haddock, whiting, herring, sprat, mackerel	DNK, GBR (Sco), FRA, DEU, NLD, NOR, SWE	Coordinated by IBTSWG; Q1 survey is conducted to mainly provide indices for youngfish and consequently is taking place in early spring.
73	International Bottom Trawl Survey Q3	IBTS Q3	Cod, haddock, whiting, Norway pout, saithe, plaice, sole, dab, brill, turbot, lemon sole, herring, sprat, sardines, anchovy	DNK, DEU, NOR, GBR (Sco & Eng), SWE	Coordinated by IBTSWG; Q3 survey is conducted to mainly provide indices for adult fish and consequently is taking place in quarter 3.
74	North Sea Beam Trawl Survey	BTS	Plaice, sole	BEL, DEU, NLD, GBR (Eng)	Coordinated by ICES WGBEAM; targeting adult flatfish; survey manual in preparation (guided by IBTS manual); different beam widths being used; relatively large geographic overlap in trawl positions in Sub-area IV.
75	Demersal Young Fish Survey	DYFS	Plaice, sole, brown shrimp	BEL, DEU, NLD, GBR (Eng)	Coordinated by ICES WGBEAM, no survey manual yet, different widths of shrimp trawls being used.
76	Sole Net Survey	SNS	Sole, plaice	NLD	Coordinated by ICES WGBEAM; using beam trawl with smaller mesh size than in the BTS; targeting 1-2 year-old plaice and sole; spatial, temporal and technical (gear) overlap with BTS and DYFS.
77	North Sea Sandeels Survey	NSSS	Sandeels	DNK, NOR	Relatively new survey, incorporated into DCF since 2009 (after recomm. by SGRN review 2007); providing the only survey on North Sea sandeel and having direct impact on the in-year monitoring and management of the stock.
78	North Sea Sandeels Survey	NSSS(Sco)	Sandeels	GBR (Sco)	Marine Scotland Science's survey provides the only index for sandeel area 4.

Table 4. List of surveys, Part B: auxiliary information (continued).

ID	Name of the survey	Acronym	Main target species	Countries	Comments
79	International Ecosystem Survey in the Nordic Seas	ASH	Herring, blue whiting	DNK, DEU, IRL, NLD, SWE, GBR, NOR, FRO, ISL, RUS	Survey incorporates other elements of the ecosystem than fish (such as zooplankton biomass).
80	Redfish Survey in the Norwegian Sea and adjacent waters	REDNOR	Redfish	NOR, RUS, FRO, EU: ESP or PRT	Relatively new survey, incorporated into DCF since 2009; providing the only survey on pelagic redfish in the Norwegian Sea and having direct impact on the management of the stock (NEAFC).
81	Mackerel Egg Survey (Triennial)	NSMEGS	Mackerel egg production	NLD, NOR	NSMEGS is complementary to the MEGS (Atlantic) to assess the North Sea component of mackerel.
82	Herring Larvae Survey	IHLS	Herring larvae, sprat larvae	NLD, DEU	IHLS delivers the only time series on herring larvae abundance in this area.
83	NS Herring Acoustic Survey	NSHAS	Herring, sprat	DNK, DEU, GBR (Sco), NLD, NOR	NSHAS is assessing the adult North Sea herring stock.
84	Nephrops TVsurvey (FU 3&4)	NTV3&4	Nephrops	DNK, SWE	Delivers the only time series on Nephrops in this area; planned to be the basis for the assessment since 2011 onwards.
85	Nephrops TVsurvey (FU 6)	NTV6	Nephrops	GBR (Eng)	Delivers the only survey time series on Nephrops in this area.
86	Nephrops TVsurvey (FU 7)	NTV7	Nephrops	GBR (Sco)	Delivers the only survey time series on Nephrops in this area.
87	Nephrops TVsurvey (FU 8)	NTV8	Nephrops	GBR (Sco)	Delivers the only survey time series on Nephrops in this area.
88	Nephrops TVsurvey (FU 9)	NTV9	Nephrops	GBR (Sco)	Delivers the only survey time series on Nephrops in this area.
89	Nephrops TV survey (FU 10)	NTV10	Nephrops	GBR (Sco)	Limited geographic scope (1 ICES rectangle only); sporadic survey years (1994, 1999, 2006, 2007).

Table 4. List of surveys, Part B: auxiliary information (continued).

ID	Name of the survey	Acronym	Main target species	Countries	Comments
90	Danish larval survey on sandeels	NSSLS	Sandeels	DNK	Opportunistic sampling of sandeel larvae on commercial vessels; no detailed background information provided.
91	Cooperative Fishermen- DTU Aqua sole survey	SOLIIIA	Sole	DNK	Some spatial overlap with BITS, but specifically designed for sole (no technical overlap), same season as BITS.
92	Spanish bottom trawl survey (slope of Svalbard)		Greenland halibut	ESP	Limited geographic scope, overlap with Norwegian survey.

Country codes:

MAR	Morocco	EST	Estonia	ISL	Iceland	POL	Poland
ALB	Albania	FRA	France	ITA	Italy	PRT	Portugal
BEL	Belgium	FIN	Finland	LTU	Lithuania	ROU	Romania
BGR	Bulgaria	FRO	Faroe Islands	LVA	Latvia	RUS	Russia
CYP	Cyprus	GBR	United Kingdom	MLT	Malta	SVN	Slovenia
DEU	Germany	GRC	Greece	MNE	Montenegro	SWE	Sweden
DNK	Denmark	HRV	Croatia	NLD	Netherlands		
ESP	Spain	IRL	Ireland	NOR	Norway		

Table 5. North Sea example of a matrix of stocks-versus-surveys to help identify data gaps.

	Survey =	Int. Bottom Trawl Survey - N Sea - 1Q	Int. Bottom Trawl survey - N Sea - 3Q	Int. Herring Larvae Survey in the N Sea and adjacent waters	ICES coordinated acoustic survey for herring	Havfisken - 1Q	Havfisken - 4Q	Cooperative Fishermen - DTU Aqua sole survey	Beam trawl survey - Channel	English groundfish survey (IBTS) - 3Q	Scottish N Sea groundfish survey (IBTS) - 3Q
Stock code	**Stock**	**IBTS-1Q**	**IBTS-3Q**	**IHLS**	**HERAS**	**KASU-1Q**	**KASU-4Q**	**-**	**UK (BTS-3Q)**	**EngGFS-3Q (IBTS-3Q)**	**ScoGFS-3Q (IBTS-3Q)**
her-47d3	Herring in Subarea IV & Div. IIIa & VIId (N Sea autumn spawners)	XXXX		XXXX	XXXX						
spr-kask	Sprat in Div. IIIa (Skagerrak - Kattegat)	XXXX	XXXX		XXXX						
spr-nsea	Sprat in Subarea IV (N Sea)	XXXX	XXXX		XXXX						
cod-kat	Cod in Div. IIIa East (Kattegat)	XXXX	XXXX			XXXX	XXXX				
sol-kask	Sole in Div. IIIa (Skagerrak-Kattegat)							XXXX			
demersal elasmobranchs north sea	Demersal elasmobranchs in the N Sea, Skagerrak, & eastern English Channel	XXXX	XXXX						XXXX		
shortfin mako	Shortfin mako in the NE Atlantic										
cod-347d	Cod in Subarea IV (N Sea), Div. VIId (Eastern Channel) & IIIa W (Skagerrak)	XXXX	XXXX								

Table 5. North Sea example of a matrix of stocks-versus-surveys (continued).

	Survey =	Norwegian shrimp survey	Underwater TV survey	Int. young fish survey	French groundfish survey	Beam trawl survey - N Sea - Isis	Beam trawl survey - N Sea - Trident	Sole net survey	Demersal fish survey	Norwegian Acoustic survey	Dredge survey
Stock code	**Stock**	**-**	**UWTV**	**YFS**	**FR-GFS**	**BTS-Isis**	**BTS-Tridents**	**SNS**	**DFS**	**NORACU**	**-**
her-47d3	Herring in Subarea IV & Div. IIIa & VIId (N Sea autumn spawners)										
spr-kask	Sprat in Div. IIIa (Skagerrak - Kattegat)										
spr-nsea	Sprat in Subarea IV (N Sea)										
cod-kat	Cod in Div. IIIa East (Kattegat)										
sol-kask	Sole in Div. IIIa (Skagerrak-Kattegat)										
demersal elasmobranchs north sea	Demersal elasmobranchs in the N Sea, Skagerrak, & eastern English Channel										
shortfin mako	Shortfin mako in the NE Atlantic										
cod-347d	Cod in Subarea IV (N Sea), Div. VIId (Eastern Channel) & IIIa W (Skagerrak)										

Table 5. North Sea example of a matrix of stocks-versus-surveys (continued).

	Survey =	Int. Bottom Trawl Survey - N Sea - 1Q	Int. Bottom Trawl survey - N Sea - 3Q	Int. Herring Larvae Survey in the N Sea and adjacent waters	ICES coordinated acoustic survey for herring	Havfisken - 1Q	Havfisken - 4Q	Cooperative Fishermen - DTU Aqua sole survey	Beam trawl survey - Channel	English groundfish survey (IBTS) - 3Q	Scottish N Sea groundfish survey (IBTS) - 3Q
Stock code	**Stock**	**IBTS-1Q**	**IBTS-3Q**	**IHLS**	**HERAS**	**KASU-1Q**	**KASU-4Q**	**-**	**UK (BTS-3Q)**	**EngGFS-3Q (IBTS-3Q)**	**ScoGFS-3Q (IBTS-3Q)**
had-34	Haddock in Subarea IV (North Sea) & Div. IIIa W (Skagerrak)	XXXX								XXXX	XXXX
nep-10	Nephrops in Div. IVa (Noup, FU 10)										
nep-32	Nephrops in Div. IVa (Norwegian Deeps, FU 32)										
nep-33	Nephrops in Div. IVb (Off Horn Reef, FU 33)										
nep-5	Nephrops in Div. IVbc (Botney Gut - Silver Pit, FU 5)										
nep-6	Nephrops in Div. IVb (Farn Deeps, FU 6)										
nep-7	Nephrops in Div. IVa (Fladen Ground, FU 7)										

Table 5. North Sea example of a matrix of stocks-versus-surveys (continued).

		Survey =	Norwegian shrimp survey	Underwater TV survey	Int. young fish survey	French groundfish survey	Beam trawl survey - N Sea - Isis	Beam trawl survey - N Sea - Trident	Sole net survey	Demersal fish survey	Norwegian Acoustic survey	Dredge survey
Stock code	**Stock**		**-**	**UWTV**	**YFS**	**FR-GFS**	**BTS-Isis**	**BTS-Tridents**	**SNS**	**DFS**	**NORACU**	**-**
had-34	Haddock in Subarea IV (North Sea) & Div. IIIa W (Skagerrak)											
nep-10	Nephrops in Div. IVa (Noup, FU 10)											
nep-32	Nephrops in Div. IVa (Norwegian Deeps, FU 32)		XXXX									
nep-33	Nephrops in Div. IVb (Off Horn Reef, FU 33)											
nep-5	Nephrops in Div. IVbc (Botney Gut - Silver Pit, FU 5)											
nep-6	Nephrops in Div. IVb (Farn Deeps, FU 6)			XXXX								
nep-7	Nephrops in Div. IVa (Fladen Ground, FU 7)			XXXX								

Table 5. North Sea example of a matrix of stocks-versus-surveys (continued).

	Survey =	Int. Bottom Trawl Survey - N Sea - 1Q	Int. Bottom Trawl survey - N Sea - 3Q	Int. Herring Larvae Survey in the N Sea and adjacent waters	ICES coordinated acoustic survey for herring	Havfisken - 1Q	Havfisken - 4Q	Cooperative Fishermen - DTU Aqua sole survey	Beam trawl survey - Channel	English groundfish survey (IBTS) - 3Q	Scottish N Sea groundfish survey (IBTS) - 3Q
Stock code	**Stock**	**IBTS-1Q**	**IBTS-3Q**	**IHLS**	**HERAS**	**KASU-1Q**	**KASU-4Q**	**-**	**UK (BTS-3Q)**	**EngGFS-3Q (IBTS-3Q)**	**ScoGFS-3Q (IBTS-3Q)**
nep-8	Nephrops in Div. IVa (Firth of Forth, FU 8)										
nep-9	Nephrops in Div. IVa (Moray Firth, FU 9)										
nep-iiia	Nephrops in Div. IIIa (Skagerak Kattegat, FU 3,4)										
nop-34	Norway Pout in Subarea IV (North Sea) & IIIa (Skagerrak - Kattegat)	XXXX	XXXX							XXXX	XXXX
ple-eche	Plaice in Div. VIId (Eastern Channel)								XXXX		
ple-kask	Plaice in Div. IIIa (Skagerrak - Kattegat)	XXXX	XXXX			XXXX	XXXX				
ple-nsea	Plaice Sub-area IV (N Sea)										

Table 5. North Sea example of a matrix of stocks-versus-surveys (continued).

	Survey =	Norwegian shrimp survey	Underwater TV survey	Int. young fish survey	French groundfish survey	Beam trawl survey - N Sea - Isis	Beam trawl survey - N Sea - Trident	Sole net survey	Demersal fish survey	Norwegian Acoustic survey	Dredge survey
Stock code	**Stock**	**-**	**UWTV**	**YFS**	**FR-GFS**	**BTS-Isis**	**BTS-Tridents**	**SNS**	**DFS**	**NORACU**	**-**
nep-8	Nephrops in Div. IVa (Firth of Forth, FU 8)		XXXX								
nep-9	Nephrops in Div. IVa (Moray Firth, FU 9)		XXXX								
nep-iiia	Nephrops in Div. IIIa (Skagerak Kattegat, FU 3,4)		XXXX								
nop-34	Norway Pout in Subarea IV (North Sea) & IIIa (Skagerrak - Kattegat)										
ple-eche	Plaice in Div. VIId (Eastern Channel)			XXXX	XXXX						
ple-kask	Plaice in Div. IIIa (Skagerrak - Kattegat)										
ple-nsea	Plaice Sub-area IV (N Sea)					XXXX	XXXX	XXXX			

Table 5. North Sea example of a matrix of stocks-versus-surveys (continued).

Survey =	Int. Bottom Trawl Survey - N Sea - 1Q	Int. Bottom Trawl survey - N Sea - 3Q	Int. Herring Larvae Survey in the N Sea and adjacent waters	ICES coordinated acoustic survey for herring	Havfisken - 1Q	Havfisken - 4Q	Cooperative Fishermen - DTU Aqua sole survey	Beam trawl survey - Channel	English groundfish survey (IBTS) - 3Q	Scottish N Sea groundfish survey (IBTS) - 3Q
Stock code	**Stock**	**IBTS-1Q**	**IBTS-3Q**	**IHLS**	**HERAS**	**KASU-1Q**	**KASU-4Q**	**-**	**UK (BTS-3Q)**	**EngGFS-3Q (IBTS-3Q)**	**ScoGFS-3Q (IBTS-3Q)**
sai-3a46	Saithe in Subarea IV (N Sea) Div. IIIa W (Skagerrak) & Subarea VI (W of Scotland and Rockall)		XXXX							
san-nsea	Sandeel in Subarea IV excl Shetland area									
san-shet	Sandeel in Div. IVa N of 59° N & W of 0° E (Shetland area)									
sol-eche	Sole in Div. VIId (Eastern Channel)								XXXX		
sol-nsea	Sole in Sub-area IV (N Sea)									
whg-47d	Whiting Sub-area IV (N Sea) & Div. VIId (Eastern Channel)	XXXX	XXXX							
whg-kask	Whiting in Div. IIIa (Skagerrak - Kattegat)									

Table 5. North Sea example of a matrix of stocks-versus-surveys (continued).

Survey =	Norwegian shrimp survey	Underwater TV survey	Int. young fish survey	French groundfish survey	Beam trawl survey - N Sea - Isis	Beam trawl survey - N Sea - Trident	Sole net survey	Demersal fish survey	Norwegian Acoustic survey	Dredge survey
Stock code	**Stock**	**-**	**UWTV**	**YFS**	**FR-GFS**	**BTS-Isis**	**BTS-Tridents**	**SNS**	**DFS**	**NORACU**	**-**
sai-3a46	Saithe in Subarea IV (N Sea) Div. IIIa W (Skagerrak) & Subarea VI (W of Scotland and Rockall)									XXXX	
san-nsea	Sandeel in Subarea IV excl Shetland area										
san-shet	Sandeel in Div. IVa N of 59° N & W of 0° E (Shetland area)										XXXX
sol-eche	Sole in Div. VIId (Eastern Channel)			XXXX							
sol-nsea	Sole in Sub-area IV (N Sea)					XXXX		XXXX			
whg-47d	Whiting Sub-area IV (N Sea) & Div. VIId (Eastern Channel)										
whg-kask	Whiting in Div. IIIa (Skagerrak - Kattegat)										

Table 5. North Sea example of a matrix of stocks-versus-surveys (continued).

	Survey =	Int. Bottom Trawl Survey - N Sea - 1Q	Int. Bottom Trawl survey - N Sea - 3Q	Int. Herring Larvae Survey in the N Sea and adjacent waters	ICES coordinated acoustic survey for herring	Havfisken - 1Q	Havfisken - 4Q	Cooperative Fishermen - DTU Aqua sole survey	Beam trawl survey - Channel	English groundfish survey (IBTS) - 3Q	Scottish N Sea groundfish survey (IBTS) - 3Q
Stock code	**Stock**	**IBTS-1Q**	**IBTS-3Q**	**IHLS**	**HERAS**	**KASU-1Q**	**KASU-4Q**	**-**	**UK (BTS-3Q)**	**EngGFS-3Q (IBTS-3Q)**	**ScoGFS-3Q (IBTS-3Q)**
pan-flad	Northern shrimp in Div. IVa (Fladen Ground)										
pan-sknd	Northern shrimp in Div.s IIIa West & IVa East (Skagerrak & Norwegian Deeps)										XXXX
hom-nsea	Horse mackerel in Div.s IIIa, IVb,c & VIId (N Sea stock)										

Table 5. North Sea example of a matrix of stocks-versus-surveys (continued).

		Survey =	Norwegian shrimp survey	Underwater TV survey	Int. young fish survey	French groundfish survey	Beam trawl survey - N Sea - Isis	Beam trawl survey - N Sea - Trident	Sole net survey	Demersal fish survey	Norwegian Acoustic survey	Dredge survey
Stock code	**Stock**		**-**	**UWTV**	**YFS**	**FR-GFS**	**BTS-Isis**	**BTS-Tridents**	**SNS**	**DFS**	**NORACU**	**-**
pan-flad	Northern shrimp in Div. IVa (Fladen Ground)											
pan-sknd	Northern shrimp in Div.s IIIa West & IVa East (Skagerrak & Norwegian Deeps)											
hom-nsea	Horse mackerel in Div.s IIIa, IVb,c & VIId (N Sea stock)											

APPENDIX 1. SGRN-10-03 PARTICIPANTS LIST

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APPENDIX 2. DETAILED COMMENTS ON SURVEYS EVALUATIONS

Table A2.1. Atlantic surveys.

Criteria codes:
1a = International coordination; 1b = Harmonised; 2a = Fisheries mgt; 2b = Ecosystem mgt needs;
3 = Data access; 4 = Survey coverage; 5 = No duplication; 6 = History of use.

Atlantic Surveys			
ID	**Survey Acronym**	**Criterion**	**Comment**
1	SAHMAS	1b	No agreement on acoustic target strength
1	SAHMAS	4	Does not cover whole range of western horse mackerel. Does cover whole range of sardine and annchovy.
2	FSP	1a	Bilateral coordination with Ireland.
2	FSP	1b	Harmonised with Ireland.
2	FSP	2a	Pending benchmarking.
2	FSP	5	Overlap with IBTS that does not provide useable index.
2	FSP	6	New survey so no history.
4	BOCADEVA	2a	Used in management but not analytical. Triennial time scale for a short lived species seems innapropriate. Has potential, but needs more development.
4	BOCADEVA	2b	Small area with only tow surveys three years apart. Difficult to see how useful this would be for ecosystem management, but could be developed.
4	BOCADEVA	6	First use in 2010.
6	BWS	1a	The coordination model is excellent, but there have been recent issues in compliance.
6	BWS	4	Spatio-temporal confounding is a problem in surveying migrating stocks like this. Undderstanding of migration trajectory is needed, particulary with such awide spatial range.
7	ECOCÁDIZ	1b	Methods are based on harmonised methods, but these may not be appropriate for the shallow areas of the Gulf of Cadiz.
7	ECOCÁDIZ	4	The survey has severe weaknesses in shallow water areas, both in terms of extension of population into shallow waters and identification of echotraces.
8	NIGFS-WIBTS-Q1	3	Data still not uploaded to DATRAS.
9	PGFS-WIBTS-Q1	2b	No ecosystem variables mentioned and limited area covered.
9	PGFS-WIBTS-Q1	4	Does not cover extent of stock.
9	PGFS-WIBTS-Q1	6	Survey stopped after 2007.
10	ScoGFS-WIBTS-Q1	4	Grenadier and anglerfish have wider ranges and are distributed deeper than this survey covers.
12	WIBTS-Q3	2b	Limited ecological value due to small area of sampling.
13	WIBTS-Q4	3	Data not in DATRAS.
13	WIBTS-Q4	4	Probably not covering full stock range of the species.
13	WIBTS-Q4	5	Overlap with qtr 4 surveys, e.g., EVHOE.
13	WIBTS-Q4	6	Short time series.

Atlantic Surveys			
ID	**Survey Acronym**	**Criterion**	**Comment**
14	EVHOE-WIBTS-Q4	4	Good coverage only if all the other qtr 4 surveys are carried out, as many of the stocks have a wider spatial extent than the survey.
14	EVHOE-WIBTS-Q4	5	Small overlap with other qtr 4 surveys, mainly for calibration purposes. Overlap with English Q4 elasmobranch survey.
15	IGFS-WIBTS-Q4	4	Good coverage only if all the other qtr 4 surveys are carried out, as many of the stocks have a wider spatial extent than the survey.
16	NIGFS-WIBTS-Q4	3	Data should be in DATRAS and are still not!
17	PTGFS-WIBTS-Q4	3	Data are not yet in DATRAS
17	PTGFS-WIBTS-Q4	4	All stocks (except Nephrops) have wider stock extent than survey. With no standard gear, this prevents any real useful index for a stock.
18	ScoGFS-WIBTS-Q4	4	Good coverage only if all the other qtr 4 surveys are carried out, as many of the stocks have a wider spatial extent than the survey.
19	SPGFS-WIBTS-Q4	3	Data are not yet in DATRAS.
19	SPGFS-WIBTS-Q4	4	All stocks have wider stock extent than survey. With no standard gear, this prevents any real useful index for a stock.
21	SPPGFS-WIBTS-Q4	1b	Requires gear harmonisation with western IBTS.
21	SPPGFS-WIBTS-Q4	4	Covers FU16 but for all other fish species would only work in combination with other western IBTS surveys.
22	ISBCBTS	2b	No information provided, but presumably can collect indicators 1,2,3 & 4, possibly more. So, could be 1 if info provided.
22	ISBCBTS	5	Some overlap for the whiting and cod with otter trawl surveys.
23	UK (BTS-3Q)	3	Data could and should be in DATRAS.
24	JUVENA	2b	Some ecosystem data collection but mainly focussed on anchovy.
24	JUVENA	6	First used in 2010.
25	LANGOLF	2a	Planned for 2011.
5	DEPM	2a	Probably will be used in assessment from 2010. Contributes to triennial mackerel egg survey.
5	DEPM	2b	Delivers.
5	DEPM	6	Based on use in the mackerel egg surveys.
26	MEGS	2b	Does not deliver data on indicators 1, 2 & 3, but includes many ecosystem variables and also provides synoptic plankton samples.
27	NIMIK	1b	Possibly harmonised with North Sea MIK surveys.
27	NIMIK	2b	May have potential but needs to be detailed.
28	ORHAGO	2a	Planned for use in 2011 benchmark, currently said to evaluate recruitment.
29	SAR	2a	Many changes in survey procedures maturing currently. Probably not used fully in assessment.

Atlantic Surveys			
ID	**Survey Acronym**	**Criterion**	**Comment**
29	SAR	4	Coverage is appropriate when combined with JUVENA and ECOCADIZ.
29	SAR	6	Many recent changes in procedure probaly have broken time series value.
31	SPSHAS	2a	New time series.
31	SPSHAS	5	No dupliction assuming that this survey is coordinated with N Ireland acoustic survey Clyde.
33	AC(VIIaN)	3	Apparently not providing data to PGIPS.
35	UWTV (FU 11-13)	1b	SGNEPs is developing harmonisation manuals etc, but this work is not completed.
35	UWTV (FU 11-13)	2b	Currently little used for ecosystem, but as a direct observation of epibenthic communities, which could be very useful in the future.
37	UWTV (FU 11-13)	6	Not used thus far.
38	UWTV (FU 14)	2a	Not currently used.
41	UWTV (FU 20-22)	4	Covers only part of the stock area.
42	UWTV (FU 28-29)	2b	Different score from other TV surveys mainly because of trawl survey component.
43	WCGFS	3	Unknown.
43	WCGFS	4	Stocks have wider range than this survey.
44	ARQDACO(P)	2b	Has potential for data from other top predators and stomach contents.
44	ARQDACO(P)	4	Survey is focused on Azores Seamount area.
45	IDS	3	Data are available for DATRAS but not entered by ICES.
45	IDS	4	Stocks have wider range than survey even if combined with Scottish survey.
45	IDS	6	Short time series.
47	UK(NI) Nephrops trawl - Summer	3	Why not applicable to DATRAS, which is a trawl survey database?
47	UK(NI) Nephrops trawl - Summer	5	Appears to be an exact duplicate of the April survey.
48	UK(NI) Nephrops trawl - Spring	2a	Not used in the assessmen.
49	REDTAS	1a	Coordinated by ICES WGRS.
49	REDTAS	1b	Survey manual exists.
49	REDTAS	2a	Survey provides the only fishery-independent relative abundance index on pelagic deep-sea redfish in this area.
49	REDTAS	2b	Provides indicators 1-4.
49	REDTAS	3	Data access via WGRS Chair (with approval by national survey co-ordinators).
49	REDTAS	4	Survey covers the distribution area of the stock(s).
49	REDTAS	6	Since 1994.

Atlantic Surveys			
ID	**Survey Acronym**	**Criterion**	**Comment**
50	FCGS	1a	Bilateral co-ordination between ESP and PRT.
50	FCGS	1b	Standard gear, with only 1 vessel participating.
50	FCGS	2b	Provides indicators 1-4.
50	FCGS	3	Data access via NAFO Scientific Council Chair (with approval by national survey co-ordinators).
50	FCGS	6	Since 1988.
51	GGS	1a	Coordinated by ICES NWWG.
51	GGS	1b	Standard gear, with only 1 vessel participating.
51	GGS	2a	Used in ICES NWWG and NAFO SC.
51	GGS	2b	Provides indicators 1-4.
51	GGS	3	Data access via NWWG Chair (with approval by national survey co-ordinators).
51	GGS	4	Good geographic coverage for most of the groundfish.
51	GGS	6	Since 1982.
52	PLATUXA	1a	Uses same design of Canadian survey.
52	PLATUXA	1b	Uses same design of Canadian survey.
52	PLATUXA	2b	Provides indicators 1-4.
52	PLATUXA	3	Data access via NAFO Scientific Council Chair (with approval by national survey co-ordinators).
52	PLATUXA	4	Small overlap with Canadian survey, but complementary to Canadian survey.
52	PLATUXA	5	Small geographic overlap with Canadian survey which covers the Candian EEZ, while the Spanish survey is mainly outside the EEZ.
52	PLATUXA	6	Fully standardised since 2005, but conversion factors are available for earlier years.

Table A2.2. Baltic Sea surveys.

Baltic Sea surveys		
Criterion	**Comments**	**Score**
	Survey ID = 53, BITS Q1 & Q4	
Internationally coordinated	The survey is internationally coordinated by the ICES WG (WGBIFS)	1
Harmonised	A common protocol is developed and maintained describing all relevant issues concerning complete description of the common survey trawl, trawling procedure, performance, working up procedures of the catch, data submission, storage of data and rules for general coordination of the survey.	1
Fisheries mgt	The survey produce abundance indices for three cod stocks for tuning of assessment models and other fundamental input (mean weight at age in stock, maturity information etc.).	1
Ecosystem mgt needs	Data for the 4 survey relevant DCF indicators are collected and reported. In addition CTD profiles are collected for each haul and acoustics are collected if oxygen deficiency is detected near bottom.	1
Data access	All catch data are submitted to DATRAS and can as such be accessed by everybody on disaggregated level. Oceanographic data are submitted to ICES oceanographic databases.	1
Survey coverage	The survey covers completely the spatial distribution of the Western and Eastern cod stock and Kattegat cod.	1
No duplication	The two quarterly survey covers different data needs for the management of the stocks	1
History of use	The indices of the survey have been input to the assessment (tuning) since 1991 (I) 1995 (IV)	1
	Survey ID = 54, GRAHS (BIAS)	
Internationally coordinated	The survey is internationally coordinated by the ICES WG (WGBIFS) as part of BIAS	1
Harmonised	A common protocol is developed and maintained which describis all relevant issues concerning complete description of the settings of the acoustic equipment, trawling procedure, performance, working up procedures of the catch and the acoustic raw data, data submission, storage of data and rules for general coordination of the survey (the common Baltic International Acoustic Survey Manual).	1
Fisheries mgt	The survey produces biomass estimates and number by age for Herring in the Golf of Riga,	1
Ecosystem mgt needs	As an acoustic survey, only information from the parallel trawling has the potential as input for the calculation of 1-4 DCF ecosystem indicators.	1
Data access	In theory all acoustic and catch data are submitted to the regional database (FishFrame) for further processing. Due to some technical problems data cannot be uploaded at present. As soon as resources are allocated to solve the database problems, data will be uploaded in the regional database. Until this has happened, data is stored in a common ACCESS database which is distributed to the participating countries and others. Processed data are submitted to the ICES assessment WGs.	1
Survey coverage	The survey covers completely the spatial distribution of the stocks in question.	1
No duplication	No duplication.	1
History of use	The indices of the survey have been input to the assessment (tuning) since 1999	1

Baltic Sea surveys		
Criterion	**Comments**	**Score**
	Survey ID = 55, SPRAS (BIAS)	
Internationally coordinated	The survey is internationally coordinated by the ICES WG (WGBIFS)	1
Harmonised	A common protocol is developed and maintained describing all relevant issues concerning complete description of the settings of the acoustic equipment, trawling procedure, performance, working up procedures of the catch and the acoustic raw data, data submission, storage of data and rules for general coordination of the survey.	1
Fisheries mgt	The survey produces tuning indices for Baltic sprat (SD22-32) to be used in the assessments.	1
Ecosystem mgt needs	As an acoustic survey, only information from the parallel trawling has the potential as input for the calculation of 1-4 DCF ecosystem indicators.	1
Data access	In general all catch data are submitted to the regional database (FishFrame) for further processing. Due to some technical problems data cannot be uploaded at present. As soon as resources are allocated to solve the database problems, data will be uploaded in the regional database. Until this has happened, data is stored in a common ACCESS database (BASS_DB.mdb) which is distributed to the participating countries and others. Processed data are submitted to the ICES assessment WGs.	1
Survey coverage	The survey covers completely the spatial distribution of the sprat stock.	1
No duplication	No duplication.	1
History of use	The indices of the survey have been input to the assessment (tuning) since 1983	1
	Survey ID = 56, RHLS	
Internationally coordinated	The survey is internationally coordinated by the ICES WG (WGIPS)	1
Harmonised	Only one country is participating	1
Fisheries mgt	The survey produces larval density indices Herring in 3a and SD 22-24,	1
Ecosystem mgt needs	No.	2
Data access	Data are kept in a national database.	1
Survey coverage	The survey covers completely the spatial distribution of the stocks in question.	1
No duplication	No duplication.	1
History of use	The indices of the survey have been input to the assessment (tuning) since 1992	1
	Survey ID = 57, GNS	
Internationally coordinated	No	3
Harmonised	No. - Only carried out by Estonia	1
Fisheries mgt	Used as input for national assessments of some local national stocks of coastal species and for a non-approved ICES assessment.	3
Ecosystem mgt needs	Key parameters for DCF indicators are sampled and recorded	2
Data access	Data are stored in an Estonian database. Assessment data are submitted to ICES ass. WG	2
Survey coverage	Covers only local national stocks (stock structure purely known)	2
No duplication	No duplication.	1

Baltic Sea surveys		
Criterion	**Comments**	**Score**
History of use	The indices of the survey have been input to the non-approved ICES assessment since 1992	1
Survey ID = 58-60, BIAS		
Internationally coordinated	The survey is internationally coordinated by the ICES WG (WGBIFS)	1
Harmonised	A common protocol is developed and maintained describing all relevant issues concerning complete description of the settings of the acoustic equipment, trawling procedure, performance, working up procedures of the catch and the acoustic raw data, data submission, storage of data and rules for general coordination of the survey.	1
Fisheries mgt	The survey produces biomass estimates and number by age for Herring in 3a+SD 22, herring in SD 25-29 (Excl. Golf of Riga), herring in Sub-div. 30 and for Baltic sprat (SD22-32) to be used in the assessments.	1
Ecosystem mgt needs	As an acoustic survey, only information from the parallel trawling has the potential as input for the calculation of 1-4 DCF ecosystem indicators.	1
Data access	In general all catch data are submitted to the regional database (FishFrame) for further processing. Due to some technical problems data cannot be uploaded at present. As soon as resources are allocated to solve the database problems, data will be uploaded in the regional database. Until this has happened, data is stored in a common ACCESS database which is distributed to the participating countries and others. Processed data are submitted to the ICES assessment WGs.	1
Survey coverage	The survey covers completely the spatial distribution of the stocks in question.	1
No duplication	No duplication.	1
History of use	The indices of the survey have been input to the assessment (tuning) since 1982 (her-2532-gor).	1
Survey ID = 61, Ichthyoplankton survey - Bornholm Basin		
Internationally coordinated	No formal coordination	3
Harmonised	No. – The survey is only carried out by the IFM-GEOMAR, Kiel, Germany	1
Fisheries mgt	Provide some supporting information concerning recruitment of cod and sprat stocks to the assessments.	3
Ecosystem mgt needs	Provide a variety of different information which can be used for understanding the ecosystem. Such knowledge is a prerequisite for the management of the ecosystem. The provided information from the survey has no implication for the calculation of the DCF ecosystem indicators.	3
Data access	Data are stored in a national database and available on request.	1
Survey coverage	Covers the Bornholm Basin which is one of 2-3 local spawning areas for Eastern cod stock. It is recommended from SGRN that the survey is merged with the Ichthyoplankton survey – Gotland Deep in order to cover all relevant areas.	1
No duplication	No duplication.	1
History of use	The survey has been regularly conducted since 1983 but has only been used as support for the assessment recently.	1
Survey ID = 62, Ichthyoplankton survey – Arkona Basin		
Internationally coordinated	No formal coordination.	3

Baltic Sea surveys		
Criterion	**Comments**	**Score**
Harmonised	No. – The survey is only carried out by the IFM-GEOMAR, Kiel, Germany	1
Fisheries mgt	Provide some supporting information concerning recruitment of cod and sprat stocks to the assessments.	3
Ecosystem mgt needs	Provide a variety of different information which can be used for understanding the ecosystem. Such knowledge is a prerequisite for the management of the ecosystem. The provided information from the survey has no implication for the calculation of the DCF ecosystem indicators.	3
Data access	Data are stored in a national database and available on request.	1
Survey coverage	Covers the Arkona Basin which is the major spawning area for Western cod stock.	1
No duplication	No duplication.	1
History of use	The survey has been regularly conducted since 1983 but has only been used as support for the assessment recently	1
Survey ID = 63, Ichthyoplankton survey – Gotland Deep		
Internationally coordinated	No formal coordination	3
Harmonised	No. – The survey is only carried out by the IFM-GEOMAR, Kiel, Germany	1
Fisheries mgt	Provide some supporting information concerning recruitment of cod and sprat stocks to the assessments.	3
Ecosystem mgt needs	Provide a variety of different information which can be used for understanding the ecosystem. Such knowledge is a prerequisite for the management of the ecosystem. The provided information from the survey has no implication for the calculation of the DCF ecosystem indicators.	3
Data access	Data are stored in a national database and available on request.	1
Survey coverage	Covers the Gotland Deep which is one of 2-3 local spawning areas for Eastern cod stock. It is recommended from SGRN that the survey is merged with the Ichthyoplankton survey – Bornholm Deep in order to cover all relevant areas.	1
No duplication	No duplication.	1
History of use	The survey has been regularly conducted since 1983 but has only been used as support for the assessment recently	1

Table A2.3. Black Sea and Mediterannean surveys.

Black Sea and Mediterannean surveys		
Criterion	**Comments**	**Score**
	Survey ID = 64, BFTAS	
Internationally coordinated	The survey will be internationally coordinated after the approval of the project.	1
Harmonised	No information is provided.	2
Fisheries mgt	The survey will produce a fisheries-independent index of BFT abundance to be used by SCRS/BFT/ICCAT. The survey is a unique way to estimate abundance indices independent of fishing.	1
Ecosystem mgt needs	The surveys will provide information on Marine mammals, Sea turtles, Large pelagics.	2
Data access	No information is provided.	2
Survey coverage	The BFT is a highly migratory large pelagic species, distributed all over the Mediterranean and managed as a single stock. However, the survey is not covering the eastern Mediterranean basin. It will be carried out on Summer (2-3 quarter) by surveying around 15 000 nm.	2
No duplication	No duplication	1
History of use	The survey was carried out during 2000 to 2003 in the framework of the project 'Stromboli' . The first year of the data series is 2009.	2
	Survey ID = 65, MEDIAS	
Internationally coordinated	An international Steering Committee is in place that meet annually to plan the survey and analyse its outcomes. It is currently chaired by Magdalena Iglesias (Spain) and composed by representatives of the aforementioned countries.	1
Harmonised	Surveys has been harmonised among participating countries since 2009 with the adaption of a common, standardised protocol for acoustic sampling and data analysis that is being regularly updated each year (MEDIAS reports 2008, 2009, 2010). A change in the survey design in the western part of the Adriatic Sea from zig-zag to parallel transects took place in 2008 in order to comply with the protocol, minimise the duration of sampling and optimise the abundance estimates. In addition, the Spanish survey that had regularly been carried out during late autumn (middle November to middle December) is now being held in summer (since 2009) in order to comply with the MEDIAS protocol. Croatia has been following the MEDIAS meetings as an observer since 2009 in an effort to adjust the respective acoustic survey in the eastern part of the Adriatic to the MEDIAS protocol.	1
Fisheries mgt	Acoustic estimates from MEDIAS, for anchovy and sardine, have been used for the stock assessment of Mediterranean stocks in GFCM/SAC/SGSA and STECF/SGMED. Specifically, in the assessment of anchovy and sardine in the Aegean Sea, the Adriatic Sea, the Sicilian Channel, the Spanish Mediterranean waters and the Gulf of Lions.	1
Ecosystem mgt needs	In the updated MEDIAS protocol (2010) sampling of oceanographic (CTD) and zooplankton data over the entire MEDIAS area has been included.	2

Black Sea and Mediterannean surveys		
Criterion	**Comments**	**Score**
Data access	MEDIAS acoustic data are available on request from each individual Member State.	1
Survey coverage	Survey covers almost the entire European part of the Mediterranean Sea targeting the most important anchovy and sardine stocks. The extension of MEDIAS to cover the Ligurian and Tyrrhenian Seas (GSA 9 and GSA 10) as well as the Eastern Ionian Sea (GSA20) will assure the assessment of anchovy and sardine stocks in these areas, which have not been covered by MEDIAS so far. This extension is recommended in order to fully cover European waters and small pelagic fish stocks in the Mediterranean Sea. Furthermore, sampling in non European territorial waters (e.g., Turkish waters in the Aegean Sea and the Black Sea) would be enviable.	2
No duplication	No duplication	1
History of use	Acoustic surveys were the main means to monitor abundance trends of anchovy and sardine in Mediterranean waters of Spain, France, Italy and Greece since the 90's. Recently, in the framework of DCR and DCF, acoustic estimates have been combined with catch-at-age data in the stock assessment of European small pelagic stocks in the Mediterranean (GFCM/SAC/SGSA and STECF/SGMED).	1
Survey ID = 66, ARTS		
Internationally coordinated	The involved scientific institutions are: the Ancona branch of CNR-ISMAR (Istituto di Scienze Marine), the branch of formerly ICRAM (now part of ISPRA, Istituto Superiore Protezione e Ricerca Ambientale) in Chioggia (Venice), the Institute of Oceanography and Fishery in Split (IOF, Croatia) and the Fisheries Research Institute of Slovenia (FRIS) in Ljubliana. The international coordination will be implemented after the approval of the survey. The cooperation among the above mentioned institutes is facilitated through an international network previously set up within the FAO AdriaMed regional programme.	1
Harmonised	A common experimental protocol as well as the gear used (an experimentally designed beam trawl) have been developed to give best estimates for the classic population parameters used to monitor the status of commercial stocks and to define priorities for the management of the same resources.	1
Fisheries mgt	The ARTS survey covers the entire stock of sole (the priority species of the survey) in GSA 17, during its recruitment and spawning period (fourth quarter), as well as for other benthic species included in the survey (i.e.: Pecten jacobaeus, Aequipecten opercularis, Sepia officinalis, Melicerthus kerathurus, Squilla mantis, Psetta maxima, Scophtalmus rhombus, Chelidonichthys lucerna, Raja spp. and other elasmobranches). Analytical assessments (Surba, XSA) were provided in GFCM WGs and STECF-SGMED since 2008.	1
Ecosystem mgt needs	The following ecosystem indicator (Appendix XIII EU Dec 93/2010) will be estimated:1-Conservation status of fish species, 2-Proportion of large fish, 3-Mean maximum length of fishes, 4-Size at maturation of exploited fish species.	1

Black Sea and Mediterannean surveys		
Criterion	**Comments**	**Score**
Data access	The data will be available to the scientific community in the framework of different meetings (AdriaMed WGs, STECF SGMED, GFCM-SAC-SCSA). All data are processed through AdriaMed Trawl Survey Information System software (AtrIS) in order to create an homogeneous database useful to standardise the field and laboratory procedures and to later monitor the joint management of the shared fish stocks. Data will be managed by Government and the access is regulated by Regulation CE 199/2008.	1
Survey coverage	The ARTS survey covers the entire stock of sole (the priority species of the survey) in GSA 17.	1
No duplication	There is no duplication with other surveys.	1
History of use	The "rapido" trawl survey started in 2005 (named as SoleMon), funded by the Italian government. During the first two years two surveys were carried out yearly (in spring and autumn, respectively) over an area of 44,880 Km2 from Trieste to the northern ridge of the Pomo pit on grounds within 5-143 m depths. In the three following years the surveys covered larger areas including the entire GSA 17.	2
Survey ID = 67, Bottom trawl survey in Black Sea		
Internationally coordinated	The surveys are coordinated by annual coordination meetings. There were some problems in allowing research vessels to enter in neighbour country in the time planned for the survey. We recommend that in future other nations such as Turkey and Ukraine are invited as observers in order to achieve harmonisation with surveys in these countries that are used in stock assessments.	1
Harmonised	Until 2009 the surveys have been performed with different types of vessels and gears in Bulgaria and Romania. Survey protocols also differed in the two countries. In 2010 and in future the survey will be performed with same vessel and gear in both Bulgarian and Romanian waters.	1
Fisheries mgt	The survey biomass index and other information (e.g. length, age, maturity) are used in stock assessment by the STECF WG on Black Sea fisheries.	1
Ecosystem mgt needs	Data on size, age, maturity, and diet of turbot are collected. The bottom trawl survey targets mainly turbot it may not be entirely suitable for sampling the entire demersal fish community (needs for a different gear and/or hauling speed). The SGRN recommends that ecosystem data and indicators are reported in future.	1
Data access	Data are reported to the national agencies and accessible on request. All data have been made accessible to the assessment WGs.	1
Survey coverage	Survey coverage is limited to EU waters (Bulgaria and Romania). Other important fishing grounds are situated in EEZ of Georgia, Russia, Turkey, & Ukraine. Surveys performed in EU and non-EU countries need to be standardised so that both can be equally used for assessments and other fisheries management needs.	2
No duplication	There is no duplication with other surveys.	1
History of use	Survey time-span is not very long (since 2003) but the survey information is crucial for stock assessment and fisheries management purposes.	1

Black Sea and Mediterannean surveys		
Criterion	**Comments**	**Score**
	Survey ID = 68, Pelagic juvenile trawl survey in Black Sea	
Internationally coordinated	The survey will be coordinated by an international steering committee. We recommend that in future other nations such as Turkey and Ukraine are invited as observers in order to achieve harmonisation with surveys in these countries that are used in stock assessments.	1
Harmonised	The survey following a common protocol in both Bulgarian and Romanian waters.	1
Fisheries mgt	The survey recruitment index will be used in stock assessment by the STECF WG on Black Sea fisheries. The SGRN recommends that the survey is carried out also in late spring (April-May) in order to provide an index of recruitment of sprat and whiting. An index of sprat recruitment from Romanian juvenile survey (time-series starting in 1995) has been successfully used in tuning of age-structured assessment of sprat by the STECF WG. Conducting a juvenile survey of sprat and whiting carried out in late spring (April-May) will improve the scoring of this survey on this criterion to 1.	2
Ecosystem mgt needs	The survey can be used in assessing jellyfish abundance.	2
Data access	Data will be reported to the national agencies and accessible on request. All data will be made accessible to the assessment WGs.	1
Survey coverage	The SGRN recommend that the survey is carried out also in late spring (April-May) in order to provide an index of recruitment of sprat and whiting. Survey coverage is limited to EU waters (Bulgaria and Romania). Other important fishing grounds are situated in EEZ of Georgia, Russia, Turkey, & Ukraine. Surveys performed in EU and non-EU countries need to be standardised so that both can be equally used for assessments and other fisheries management needs.	2
No duplication	There is no duplication with other surveys.	1
History of use	The survey indices will be collated to existing time series (since 1995) and used in stock assessment and fisheries management purposes. An index of sprat recruitment from Romanian juvenile survey (time-series starting in 1995) has been successfully used in tuning of age-structured assessment of sprat by the STECF WG. Conducting a juvenile survey of sprat and whiting carried out in late spring (April-May) will improve the scoring of this survey on this criterion to 1.	2
	Survey ID = 69, Pelagic trawl survey in Black Sea	
Internationally coordinated	The surveys are coordinated by annual coordination meetings. There were some problems in allowing research vessels to enter in neighbour country in the time planned for the survey. We recommend that in future other nations such as Turkey and Ukraine are invited as observers in order to achieve harmonisation with surveys in these countries that are used in stock assessments.	1

Black Sea and Mediterannean surveys		
Criterion	**Comments**	**Score**
Harmonised	Until 2009 the surveys have been performed with different types of vessels and gears in Bulgaria and Romania. Survey protocols also differed in the two countries. In 2010 and in future the survey will be performed with same vessel and gear in both Bulgarian and Romanian waters. In 2011-2013 this survey will be performed as a acoustic survey/duplicated by pelagic trawl survey complying to the MEDIAS protokol	1
Fisheries mgt	The survey biomass index and other information (e.g., length, age, maturity) are used in stock assessment by the STECF WG on Black Sea fisheries.	1
Ecosystem mgt needs	Data on size, age, maturity, and diet are collected, as well as zooplankton samples.	2
Data access	Data are reported to the national agencies and accessible on request. All data have been made accessible to the assessment WGs.	1
Survey coverage	Survey coverage is limited to EU waters (Bulgaria and Romania). Other important fishing grounds are situated in EEZ of Georgia, Russia, Turkey, & Ukraine. Surveys performed in EU and non-EU countries need to be standardised so that both can be equally used for assessments and other fisheries management needs.	2
No duplication	There is no duplication with other surveys.	1
History of use	Survey time-span is not very long (since 2003) but the survey information is crucial for stock assessment and fisheries management purposes.	2
	Survey ID = 70, MEDITS	
Internationally coordinated	Since 1994 the activity of the group is managed by a international steering committee chaired by a general coordinator and composed by the national coordinators.	1
Harmonised	The protocols of the survey are gathered in a handbook which is revised by the group when necessary (MEDITS-Handbook_2007 rev). It describes the sampling gear (a trawl specifically designed for the survey series GOV 73), the sampling scheme (areas covered, stratification, haul distribution, etc.), the period of the survey (May-July) the characteristics of one haul, standardised biological observations (reference species, parameters, etc.), as well as standardised exchange formats for the data collected. Each year about 1200 hauls are carried out.	1
Fisheries mgt	Main data collected concerns geo-referred abundance (all sampled taxa) and stock structure (39 target species of fish, crustaceans and cephalopods) indices. Advices were based on analytic models and F based reference points and spatial closures.	1
Ecosystem mgt needs	In order to be able to estimate all the four DCF indicators of the effects of fisheries on the marine ecosystem (Annex XIII of the decision CE 93/2010), included “Size at maturation of exploited fish species”, it is recommended to collect individuals data (age, length, sex and maturity) of specimens in the future.	2
Data access	Data from 1994 to 2001 were managed by the steering committee with a centralised data base. Data from 2002 onward are managed by MS Government and the access is regulated by the art. 13 to 22 of the Regulation CE 199/2008.	1

Black Sea and Mediterannean surveys		
Criterion	**Comments**	**Score**
Survey coverage	Medits covers most of the northern coasts of the Mediterranean (GSA 1, GSA 2, GSA 3, GSA 5, GSA 6, GSA 7, GSA 8, GSA 9, GSA 10, GSA 11, GSA 15, GSA 16, GSA 17, GSA 18, GSA 19, GSA 20, GSA 22, GSA 23 and GSA 25). Three (Alboran Sea, Gulf of Lions, Adriatic Sea) of the 5 main "shared stock" areas recognised in the Mediterranean are investigated. However the involvement of no EU countries of north Africa (Tunisia) and middle east (Turkey) is strongly recommended.	2
No duplication	There is no duplication with other surveys.	1
History of use	Time series starts in 1994. Up to 2008 five special volumes and about 280 papers based on the Medits data were recorded. The applications are for stock assessment, biodiversity and habitat studies, to elaborate population and community indicators, etc.. Since 2002, the European countries bordering the Mediterranean Sea are obliged to carry out Medits surveys yearly in the framework of the European data collection regulation. Data are particularly elaborated to support the activity of the SAC-GFCM and the SGMED-Working groups.	1
	Survey ID = 71, TSMEDI	
Internationally coordinated	The group will be managed by a international steering committee chaired by a general coordinator and composed by the national coordinators of the TSMEDI survey.	1
Harmonised	The survey will be performed by applying the MEDITS protocol (MEDITS-Handbook_2007 rev). A stratified random sampling will be adopted with allocation of stations and haul duration according to the MEDITS standard. For sake of comparison also the same gear will be used and geometry monitored during the operations. Surface and bottom temperature will be also monitored, to account for basic oceanographic factors. The list of target species from MEDITS survey (Medits-Handbook_2007 rev; 39 demersal species) will be adopted and complemented with Engraulis encrasicolus and Sardina pilchardus that are in the G1 group of the DCF. The survey will be carried out in the 4th quarter with homogeneous methodology and operational protocols.	1
Fisheries mgt	The use of two survey data sets should be complementary in order to capture the most relevant biological events. This would permit more accurate estimates of life history parameters such as mortality and growth. In addition it would provide valuable records for the estimation of recruitment indices of most of the target species of DCF that recruited in 4th quarter, such as Mullidae, Sparidae, Centracantidae and Octopus vulgaris and contribute to the collection of ecosystem indicators. At the same time, data to better assess the spatial occupation of the different life phases of the stocks would be available (seasonal distribution, spatial segregation and community structure, reproduction and recruitment areas) allowing suggestion of advices based on spatial closures of the nurseries. Fisheries management advices will be given for the following GSAs: GSA9; GSA10; GSA11; GSA15; GSA16; GSA17; GSA18; GSA19 and GSA25.	1

Black Sea and Mediterannean surveys		
Criterion	**Comments**	**Score**
Ecosystem mgt needs	Together with the device for identify the essential fish habitat for protection measures the surveys will allow to estimate the environmental indicator "Size at maturation of exploited fish species" (Annex XIII of the decision CE 94/2008) for the autumn spawning species will be estimated. Likewise for the MEDITS surveys, the group recommends to collect individuals data (age, length, sex and maturity).	2
Data access	Data will be managed by Government and the access will be regulated by the art. 16 to 22 of the Regulation CE 199/2008.	1
Survey coverage	TSMEDI will cover the whole of the eco-region of central Mediterranean (Adriatic and Ionian Sea). The Adriatic sea, that is an area of shared stock, will be totally covered by the surveys. The Strait of Sicily, the other "shared stock" area, in the region will be only partially covered (Italy and Malta). The future involvement of Tunisia is strongly recommended.	2
No duplication	The proposal intends to complement, for some Mediterranean GSAs (Geographical sub-area according to the FAO classification), the current MEDITS carried out in the spring-summer, with special focus on key biological processes as recruitment, growth and mortality, during autumn season. Since no survey is carried out during autumn in the Mediterranean there is no duplication with other surveys.	1
History of use	A first proposal has been submitted in 2006 and already presented at the 6th RCMMed&BS. The current proposal has been restructured for this new submission. It is also worth mentioning that in some areas, and within the regional Adriamed project, autumn surveys (e.g. Grund project) carried out in the past had provided useful information for stock assessment since 1985. Data will be elaborated to support the activity of the SAC-GFCM and the SGMED-Working groups.	1

Table A2.4. North Sea and Eastern Arctic surveys.

Criteria codes:
1a = International coordination; 1b = Harmonised; 2a = Fisheries mgt; 2b = Ecosystem mgt needs;
3 = Data access; 4 = Survey coverage; 5 = No duplication; 6 = History of use.

North Sea and Eastern Arctic Surveys			
ID	**Acronym**	**Criterion**	**Comment**
72	IBTS Q1	1a	Coordinated by ICES IBTSWG.
72	IBTS Q1	1b	IBTS Manual; e.g. standard survey gear (GOV).
72	IBTS Q1	2b	Produces indicators 1-3, (4): all fish species are determined; length data for all species are being collected; maturity being recorded for target species.
72	IBTS Q1	3	Available in ICES DATRAS.
72	IBTS Q1	5	Same area coverage as IBTS Q3, but in a different season (qtr 1), mainly aiming at recruitment and youngfish.
72	IBTS Q1	6	Used since 1983, but since 1970s for some stocks.
73	IBTS Q3	1a	Coordinated by ICES IBTSWG.
73	IBTS Q3	1b	IBTS Manual; e.g. standard survey gear (GOV).
73	IBTS Q3	2b	Produces indicators 1-3, (4): all fish species are determined; length data for all species are being collected; maturity being recorded for target species.
73	IBTS Q3	3	Available in ICES DATRAS.
73	IBTS Q3	5	Same area coverage as IBTS Q1, but in a different season (qtr 3), mainly aiming at adult fish.
73	IBTS Q3	6	Used in current form since 1993, but since 1970's for some stocks.
74	BTS	1a	Coordinated by ICES WGBEAM.
74	BTS	1b	Different beam widths being used: UK-Eng and BEL: 4m, GE: 7 m, NL: 8 m. ICES WGBEAM is working towards a common survey manual, first draft scheduled for 2011.
74	BTS	2a	Used in assessments for North Sea sole and plaice. Also provides survey indices for dab, brill and lemon sole.
74	BTS	2b	Produces indicators 1-3, (4): all fish species are determined; length data for all species are being collected; maturity being recorded for target species.
74	BTS	3	Data access partly via DATRAS, partly via WGBEAM Chair (with approval by national survey co-ordinators).
74	BTS	4	ICES Sub-area IV covered by BEL, GE and NL in Aug/Sep; Div. VIId covered by UK-Eng in July.
74	BTS	5	Geographic overlap between trawl positions of participating countries.
74	BTS	6	Used at least since 1992.
75	DYFS	1a	Coordinated by ICES WGBEAM.
75	DYFS	1b	Different widths of the shrimp trawls being used: BEL: 6 m, GE: 3 m, NL: 3-6 m, UK-Eng: 2 m.

North Sea and Eastern Arctic Surveys			
ID	**Acronym**	**Criterion**	**Comment**
75	DYFS	2a	WGCRAN investigates survey indices for brown shrimp; for plaice in Sub-area IV, survey indices are NOT being used.
75	DYFS	2b	Produces indicators 1-3, (4): all fish species are determined; length data for all species are being collected; maturity being recorded for target species.
75	DYFS	3	Data access via WGBEAM or WGCRAN Chair (with approval by national survey co-ordinators).
75	DYFS	6	Used at least since 1983.
76	SNS	1a	Coordinated by ICES WGBEAM.
76	SNS	1b	6 m beam trawl being used. National survey manual exists.
76	SNS	2a	Provides a tuning series.
76	SNS	2b	Produces indicators 1-3, (4): all fish species are determined; length data for all species are being collected; maturity being recorded for target species.
76	SNS	3	Data stored at IMARES, The Netherlands.
76	SNS	4	Survey design (fixed stations perpendicular or parallel to the continental coastline) would not allow for monitoring of distributional stock changes.
76	SNS	5	Value of the survey series lies in its length (> 40 years); while spatial, temporal and technical (gear) overlap with BTS and DYFS should be evaluated.
76	SNS	6	Used at least since 1969.
77	NSSS	1a	Co-ordination not formalised yet, but included in the ICES WGNSSK.
77	NSSS	1b	DK and UK(Sco) survey parts take place in same time of the year & with same duration (15 days), using the same type of dredges.
77	NSSS	2a	Directly used for in-year monitoring and management of sandeel stock in the North Sea.
77	NSSS	2b	Survey is strictly designed for target species (sandeel) and thus provides only limited ecosystem information.
77	NSSS	3	Data available to assessment (WGNSSK, WKSAN) and management.
77	NSSS	4	Sandeel areas 1-3 covered.
77	NSSS	5	NSSS is the only survey on North Sea sandeel.
77	NSSS	6	First data collected in 2004 (DK), but used in the assessment since 2010.
78	NSSS(Sco)	1a	Co-ordination not formalised yet, but included in the ICES WGNSSK.
78	NSSS(Sco)	1b	DK and UK(Sco) survey parts take place in same time of the year & with same duration (15 days), using the same type of dredges.
78	NSSS(Sco)	2a	So far not used. Survey results have been presented WKSAN. Survey provides the only index on stock development in sandeel area 4.

North Sea and Eastern Arctic Surveys			
ID	**Acronym**	**Criterion**	**Comment**
78	NSSS(Sco)	2b	Survey is strictly designed for target species (sandeel) and thus provides only limited ecosystem information.
78	NSSS(Sco)	3	Data available to assessment (WGNSSK, WKSAN) and management.
78	NSSS(Sco)	4	Sandeel area 4 covered.
78	NSSS(Sco)	5	NSSS is the only survey on North Sea sandeel.
78	NSSS(Sco)	6	First data collected in 2008 by UK-Sco.
79	ASH	1a	Coordinated by ICES WGNAPES.
79	ASH	1b	Survey manual exists.
79	ASH	2b	Produces indicators 1-4.
79	ASH	3	Data available via WGNAPES Chair (with approval by national survey co-ordinators).
79	ASH	4	Distribution area of Norwegian spring-spawning herring is covered.
79	ASH	5	ASH is the only survey on Norwegian spring-spawning herring.
79	ASH	6	Used since 2004.
80	REDNOR	1a	Coordinated by ICES WGRS.
80	REDNOR	1b	Survey manual exists.
80	REDNOR	2a	Used by ICES AFWG (assessment) and NEAFC (management).
80	REDNOR	2b	Produces indicators 1-4.
80	REDNOR	3	Data avilable via WGRS Chair (with approval by national survey co-ordinators).
80	REDNOR	4	Distribution area of pelagic S. mentella in the Norwegian Sea and adjacent waters is covered; season (August) is chosen based on highest abundance of redfish in this area.
80	REDNOR	5	REDNOR is the only survey on pelagic component of S. mentella in the Norwegian Sea.
80	REDNOR	6	Short data series; used since 2007.
81	NSMEGS	1a	Coordinated by ICES WGMEGS.
81	NSMEGS	1b	Survey manual exists.
81	NSMEGS	2a	NSMEGS is providing the only fishery-independent data series on North Sea mackerel.
81	NSMEGS	2b	Produces indicators 1-4.
81	NSMEGS	3	Data available via WGMEGS (with approval by national survey co-ordinators).
81	NSMEGS	4	Survey takes place every 3rd year with a 1-year delay from the MEGS (Atlantic). Survey uses adaptive sampling approach with regard to survey area.
81	NSMEGS	5	NSMEGS is the only survey on the North Sea component of mackerel.
81	NSMEGS	6	Used since 1968.
82	IHLS	1a	Coordinated by ICES WGIPS.

North Sea and Eastern Arctic Surveys			
ID	**Acronym**	**Criterion**	**Comment**
82	IHLS	1b	Survey manual exists.
82	IHLS	2b	Survey is designed for ichthyoplankton.
82	IHLS	3	Data available via WGIPS Chair (with approval by national survey co-ordinators).
82	IHLS	4	Covering spawning areas and seasons.
82	IHLS	5	IHLS is the only survey on herring larvae in this area.
82	IHLS	6	Used since 1973.
83	NHAS	1a	Coordinated by ICES WGIPS.
83	NHAS	1b	Survey manual exists.
83	NHAS	2b	Produces indicators 1-4.
83	NHAS	3	Data available via WGIPS Chair (with approval by national survey co-ordinators).
83	NHAS	4	Covering distribution area of North Sea herring.
83	NHAS	5	NSHAS is assessing the adult North Sea herring stock.
83	NHAS	6	Used since 1989.
84	NTV3&4	1a	Coordinated by ICES SGNEPS.
84	NTV3&4	1b	Standard procedures for UWTV observations established (WKNEPHTV 2007).
84	NTV3&4	2a	Will be used in future (in stock assessment from 2011 onwards).
84	NTV3&4	2b	Indicators 1-4 only demand fish data.
84	NTV3&4	3	Data available via WGNSSK Chair (with approval by national survey co-ordinators).
84	NTV3&4	6	Was introduced to DCF in 2009. Indices not used yet, but will be used from 2011 onwards.
85	NTV6	1a	Coordinated by ICES SGNEPS.
85	NTV6	1b	Standard procedures for UWTV observations established (WKNEPHTV 2007).
85	NTV6	2b	Indicators 1-4 only demand fish data.
85	NTV6	3	Data available via WGNSSK Chair (with approval by national survey co-ordinators).
85	NTV6	6	Supported by the DCF since 2009. Survey indices are being used in the assessment since 2001.
86	NTV7	1a	Coordinated by ICES SGNEPS.
86	NTV7	1b	Standard procedures for UWTV observations established (WKNEPHTV 2007).
86	NTV7	2b	Indicators 1-4 only demand fish data.
86	NTV7	3	Data available via WGNSSK Chair (with approval by national survey co-ordinators).
86	NTV7	6	Used since 1992.
87	NTV8	1a	Coordinated by ICES SGNEPS.

North Sea and Eastern Arctic Surveys			
ID	**Acronym**	**Criterion**	**Comment**
87	NTV8	1b	Standard procedures for UWTV observations established (WKNEPHTV 2007).
87	NTV8	2b	Indicators 1-4 only demand fish data.
87	NTV8	3	Data available via WGNSSK Chair (with approval by national survey co-ordinators).
87	NTV8	6	Used since 1998.
88	NTV9	1a	Coordinated by ICES SGNEPS.
88	NTV9	1b	Standard procedures for UWTV observations established (WKNEPHTV 2007).
88	NTV9	2b	Indicators 1-4 only demand fish data.
88	NTV9	3	Data available via WGNSSK Chair (with approval by national survey co-ordinators).
88	NTV9	6	Used since 1993.
89	NTV10	1a	Not included in SGNEPS.
89	NTV10	1b	Assume this survey is using the same TV techniques (WKNEPHTV 2007).
89	NTV10	2a	Very limited geographic scope (1 ICES rectangle only); sporadic survey years (1994, 1999, 2006, 2007).
89	NTV10	2b	Indicators 1-4 only demand fish data.
89	NTV10	3	Data available via WGNSSK Chair (with approval by national survey co-ordinators).
89	NTV10	4	Very limited geographic scope (1 ICES rectangle only); sporadic survey years (1994, 1999, 2006, 2007).
89	NTV10	6	Currently not used in the assessment.
90	NSSLS	2a	Not used in sandeel assessment.
90	NSSLS	4	Opportunistic sampling on commercial vessels (1 haul per night).
90	NSSLS	6	Not used in the assessment.
91	SOLIIIA	1a	Survey mentioned in ICES WKFLAT 2010
91	SOLIIIA	1b	Survey mentioned in ICES WKFLAT 2010.
91	SOLIIIA	2b	Produces indicators 1-4.
91	SOLIIIA	3	Data available to WKFLAT 2010.
91	SOLIIIA	4	Southern part of ICES Div. IIIa is covered.
92	ESP bottom trawl slope of Svalbard	2a	Survey not used in the assessment of Greenland halibut in areas I and II.
92	ESP bottom trawl slope of Svalbard	2b	Produces indicators 1-2 only.
92	ESP bottom trawl slope of Svalbard	3	Data available to ICES AFWG.
92	ESP bottom trawl slope of Svalbard	4	Limited spatial scope compared to stock distribution area.

North Sea and Eastern Arctic Surveys			
ID	**Acronym**	**Criterion**	**Comment**
92	ESP bottom trawl slope of Svalbard	5	Spatial overlap with Norwegian survey.
92	ESP bottom trawl slope of Svalbard	6	Not used in the assessment.

ANNEX. EXPERT DECLARATIONS

Declarations of invited experts are published on the STECF web site on https://stecf.jrc.ec.europa.eu/home together with the final report.

European Commission

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Authors: Sampson, D., Alpoim, R., Brodie, W., Daskalov, G., Degel, H., Fiorentino, F., Korsbrekke, K., Morgado, M.C., O'Brien, C., Reid, D., Somarakis, S., Stransky, C., and Uriarte, A.

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Abstract
SGRN-10-03, which was held on 4 – 8 October 2010 in Brussels (Belgium), conducted a review and evaluation of research vessel surveys that had been proposed for partial funding under the Data Collection Framework. The Review Group assigned priority scores to 92 proposed surveys and provided recommendations on how to conduct future reviews. STECF reviewed the report during its Plenary meeting on 8-12 November 2010.

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The Scientific, Technical and Economic Committee for Fisheries (STECF) has been established by the European Commission. The STECF is being consulted at regular intervals on matters pertaining to the conservation and management of living aquatic resources, including biological, economic, environmental, social and technical considerations.

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